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ABSTRACT

Intended to assist Agency for International Development officers, advisors, and health officials in incorporating health planning into national plans for economic development, this ninth of ten manuals in the International Health Planning Methods series contains eight papers dealing with the integration of community health concerns into development planning. Most were given at the conference on Planning for Health Care in the Context of Economic Development (San Diego, California, May 1978). They are (1) Bridging the Health Gap, by Paul Ahmed and Aliza Kolker; (2) Family Composition and Structure in Relation to Nutrition and Health Problems: Impact and Measurement, by Susan C.M. Scrimshaw and Gretel H. Pelto; (3) Rural Health Reorganization in Tanzania: The Implications of Change Implementation by Richard H. Hart; (4) The Community Health Worker: Guidelines for Training the Community to Power the Program, by Aaron E. Ifekwunigwe; (5) Critical Environmental and Economic Interdependencies: The Search for Societal Values, by Climis A. Davos; (6) Health Sector Assessment, by Ahmed and Kolker; (7) Socio-Cultural Factors in Health Planning throughout the World, by John J. Hanlon; and (8) Psycho Social and Cultural Aspects of International Health Planning: The Challenge of Providing Health Care Assistance to Developing Countries by Ahmed and Renee White Fraser. (YLB)

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International Health Planning Methods Series

9

Community Health Planning

A Compendium of Papers on Community Health Planning Issues

CE 024 230

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A Compendium of Papers on Community Health Planning Issues

U.S. Department of Health, Education, and Welfare
Public Health Service
Office of the Assistant Secretary for Health
Office of International Health

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PREFACE TO THE SERIES

The International Health Planning Methods Series has been developed by the Office of International Health, Public Health Service on request of the Agency for International Development.

The series consists of ten basic volumes which cover a variety of health issues considered vital for effective development planning. These ten volumes are supplemented by six additional works in the International Health Reference Series, which list resource and reference material in the same subject areas.

The International Health Planning Methods Series is intended to assist health sector advisors, administrators and planners in countries where the Agency for International Development supports health related activities. Each manual attempts to be both a practical tool and a source book in a specialized area of concern. Contributors to these volumes are recognized authorities with many years of experience in specialized fields. Specific methods for collecting information and using it in the planning process are included in each manual.

The six supporting documents in the International Health Reference Series contain reports of literature surveys and bibliographies in selected subject areas. These are intended for the serious researcher and are less appropriate for broad field distribution.

The volumes in the International Health Planning Methods Series contain the collective effort of dozens of experienced professionals who have contributed knowledge, research and organizational skills. Through this effort they hope to provide the AID field officer and his host country counterparts with a systematic approach to health planning in developing countries.

PREFACE TO VOLUME NINE

This volume deals with the subject of community health planning. It consists of a collection of papers dealing with the integration of community health concerns into development planning. It is the ninth volume in a series of works known collectively as the International Health Planning Methods Series.

The series was produced by the Office of International Health on request of the Agency for International Development to provide AID advisors and national health officials in developing countries with critically needed guidelines for incorporating health planning into national plans for economic development.

Awareness of the important role that health plays in successful development has been increasing during recent years. A recognition and concern for the role of health in development planning was the central theme of a three-day conference on Planning for Health Care in the Context of Economic Development held in San Diego during May 1978. Conference organizer was Renee White Fraser, Ph.D., University of Southern California. Proceedings of that conference have provided most of the papers that appear in this volume.

The San Diego conference was sponsored by the U.S. Office of International Health in conjunction with the Agency for International Development. Its purpose was to identify problems and suggest solutions which would encourage and improve planning for health care in the developing countries of the world.

Preparation of this volume was undertaken for the Office of International Health by Plog Research, Inc., of Reseda, California, functioning as a subcontractor to the E.H.White & Co., Management Consultants of San Francisco, California.

Authors of articles presented in this manual have frequently expressed personal points of view with reference to specific health projects. While their viewpoints generally coincide with organizations or agencies with whom they are associated, the material in this text should not be construed to reflect the official policy of any agency or organization.

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INTRODUCTION

Community health planning is emerging at the present time among health planners as one of the more promising avenues for the formulation of improved health care delivery systems in the developing countries of the world. Community health planning, of course, means many things to many people, and the subject can be approached from several points of view, all promising some degree of validity.

Some planners prefer to emphasize the aspect of planning for the community, basing commitment of personnel and finances on as much specific knowledge of the particular needs and resources of a community that it is possible to obtain through systematic assessment procedures.

Other planners prefer to emphasize the aspect of health planning by the community, attempting to incorporate perceived needs and expressed desires at the local level into the overall planning process. The degree of input to development planning permitted at the community level is thought to be relevant to prospects for later cooperation and ultimate success or failure of a comprehensive health plan.

Implicit in an emphasis on community health planning are two fundamental concepts, both of which are discussed at length in the following papers. These are: (1) a sensitivity toward cultural differences and traditional preferences in populations that inhabit rural, relatively poor areas, and (2) a recognition that the indigenous medical system or practitioner can be incorporated advantageously within national health improvement plans.

The first paper in this manual is "Bridging the Health Gap" by Paul Ahmed and Aliza Kolker. This paper is specifically concerned with the use of indigenous resources in developing countries.

Attention is focused on analysis of the "western" model of medicine, its essentially biomedical approach, and its appropriateness for applications in non-western communities. The biomedical model, with its perception of disease as a treatable phenomenon separate and distinct from the personality or environment of the sufferer, is suggested as being inappropriate under many circumstances. Problems of medical technology transfer are linked to inabilities to foresee cultural conflicts and too much reliance on the supposed universality of the western biomedical model.

The persistence of traditional conceptions of disease and traditional medical practices side by side with western "imports" is recognized as proof that the traditional system continues to have something to offer which the local population finds important. A review of pertinent literature reveals that not only are many aspects of indigenous medicine actually "scientific", but also that western medicine is far from omnipotent, particularly with reference

to meeting the needs of rural, poor populations in the developing nations of the world.

The authors conclude that a rational viewpoint is to dismiss the notion that western and indigenous medical models are inherently antagonistic and to develop, instead, an integrated medical care system that takes from each tradition those elements that best satisfy the needs of a particular community. The point is made that, in order to conform to the WHO definition of health, it is essential to focus the efforts of the health care system toward the needs and values of people in rural communities.

Susan C.M. Scrimshaw and Gretel H. Pelto provide the next paper, "Family Composition and Structure in Relation to Nutrition and Health Problems: Impact and Measurement".

This paper is concerned with predicting outcome variables for studies of the impact of nutrition and nutrition related health programs on family composition and structure. A model is offered and methodological issues are delineated. Finally, some concrete suggestions for data collection and analysis are proferred.

Several types of evaluations are outlined that can be utilized to "prove" that a given health program has achieved a particular effect. The authors emphasize that, while a perfect evaluation which explains everything may not be possible or practical, it may be altogether possible to understand a great deal about a program (perhaps all that is necessary) when appropriate measuring techniques and devices are used.

The authors point out that, while it is difficult to be certain of precise causality in the assessment of a health program impact, the evaluation of nutrition and health is an important function with far reaching relevance. Lacking an accurate periodic assessment, a program runs the risk of completely missing the means of achieving its goals within the community.

Richard H Hart, M.D., then offers his report of "Rural Health Reorganization in Tanzania: The Implications of Change Implementation."

This paper deals specifically with the cultural impact of plans for health care improvements in the country of Tanzania. The report offers specific examples of the manner in which societies can be expected to respond to pressures by a combination of gradual change and a simultaneous reaffirmation of traditional beliefs. The author points out that accelerated societal change in the form of improved health services can be expected to be disruptive.

Proposed services are itemized, and planning procedures are described. This is followed by a report of an implementation program consisting of a pilot program, seminars, manpower training programs, and other pertinent aspects of implementation, including equipment, supply, and legislation support.

The author concludes that successful development of a rural health program hinges on many variables, but that an accurate assessment of community resources can do much to ease progress of any planned change in health care procedures.

Aaron E. Ifekwunigwe, M.D., supplies the next paper, which is entitled "The Community Health Worker: Guidelines for Training the Community to Power the Program." This paper is directly concerned with community implementation of health programs.

The author believes that it is of the utmost importance that health programs be planned and undertaken in partnership with the community, based on their expressed needs and with their fullest possible involvement and participation.

The point is made that nutrition and health are inseparably related, and that food supply is similarly linked to food production. The importance of agriculture, the economic mainstay of most developing countries, is thereby linked to health. Local community organization and leadership in the economic realm (farm cooperatives, etc.) are seen as potentially the most effective agents for affecting change in the public health sphere.

Selection and training of community-based health workers is described, and the functions of the community health worker are outlined. These functions are subdivided into the areas of basic health services, nutrition services, family planning services and environmental health services.

Climis A. Davos supplies the next paper, which is "Critical Environmental and Economic Interdependencies: The Search for Societal Values." Here the emphasis again is on the need to work within the context of a local culture and to establish goals that are relevant to the needs and resources of the community.

The author argues that it is not enough to plan for health development by assessing health needs alone, expressing them as goals , and designing strategies to accomplish these stated goals. Three distinct areas for further research are identified, which will impact on the success or failure of the program.

The first area of research is the interdependencies among all of the goals that might be referred to as environmental. Secondly, the health impact of these interdependencies must be determined. Finally, boundaries must be established beyond which health concerns and impacts should not be traded in the name of economic advancement or other societal goals.

Each of these research areas is described in detail, and examples are offered. The author concludes that he has argued for a participatory and systematic integration of health concerns into planning for development.

The next paper is "Health Sector Assessment" by Paul Ahmed and Aliza Kolker. This paper provides background for the development of health sector assessments as a tool for coordinated and integrated health services planning, particularly in areas with limited resources.

A discussion of the concept of assessments is followed by a detailed description of the initiation and nature of a model assessment. Procedures are outlined and personnel requirements suggested.

The authors discuss a number of criticisms and limitations of health sector assessments and conclude that the assessment has proved to be more useful as a short-term, program planning document than as a comprehensive effort to organize or coordinate the health sector of an entire country. The community

orientation for effective assessment applications is thus suggested, ultimately proving its worth in directing limited resources to the point where they will produce the most good.

John J. Hanlon, M.D. contributes the next paper, which is entitled, "Socio-Cultural Factors in Health Planning Throughout The World." The essential message here is that socio-cultural factors can be extremely important in planning for health care systems in developing countries.

The author makes the point that western-trained medical professionals may become "strangers in their own land" as a result of their training, failing to realistically evaluate the needs and resources of their native society upon return to it. He cites unrealistic reliance on sophisticated equipment and misdirected goals to provide "prestige" medical treatment in an environment that demands merely adequate care for the greatest number of persons.

The usefulness of indigenous medical practitioners is recognized beneath a burden of cultural bias, and the author is encouraged to note an increasing emphasis being placed upon the application of the social sciences to health problems. Certain sociocultural components or factors that should be taken into consideration in health planning are outlined. Similarly, pitfalls to be avoided are considered.

While conceding that political and economic realities cannot be ignored by the health planner, the author believes that sound and effective health policies and programs can be developed in any given political-economic system if the health planner is sufficiently skillful in the political process.

The final paper in this manual is "Psycho Social and Cultural Aspects of International Health Planning: The Challenge of Providing Health Care Assistance to Developing Countries" by Paul Ahmed and Renee White Fraser.

This paper attempts to answer some fundamental questions about health care assistance programs. Has this massive help been successful? Have donor nations met the challenge appropriately? Are there new approaches worth exploring? The authors point out numerous criticisms and deficiencies in early attempts to provide health care assistance, most notably attempts that were based on an ethnocentric bias that western medicine was easily transferrable to other regions. Numerous psychological, social and cultural barriers to the transfer of medical technology are mentioned, and the authors conclude that it seems clear that the application of physical and biological sciences alone will not solve the problem.

Alternatives to the basic western biomedical model are described from existing literature, and a diagramatic analysis is supplied to depict an individual's process for assimilating information about disease and making decisions about medical care.

The authors close with an appeal for greater community participation in the health planning process. The need to involve local people in participatory planning and management of local health projects is described as a difficult task, but one that offers the greatest long range benefits.

Paul Ahmed
Paul I. Ahmed

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BRIDGING THE HEALTH GAP:
THE USE OF INDIGENOUS RESOURCES IN MEETING
THE MANPOWER REQUIREMENTS OF THE WHO DEFINITION OF HEALTH *

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The WHO Definition

The goal of adequate health care for all the earth's people, pursued by the leaders of the world's nations in the last three decades, was formulated in the Preamble to the Constitution of the World Health Organization in 1946. That document defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity." This state was regarded as the fundamental right of all human beings "without distinctions of race, religion, political belief, economic or social condition," and the health of all peoples was declared "fundamental to the attainment of peace and security" (Chasse, 1978). This definition, vague and idealistic as it was, has been used as a focus for health planning guidelines and policies by donor agencies and developing countries alike. In this paper we will discuss the implications of the WHO definition for health manpower planning and the obstacles that impede its full realization. These obstacles include the general problems of instituting planned change, the shortcomings of the Western medical model itself, and the severe shortages of trained manpower that seem more or less permanent in developing nations. We will contend that the only realistic means for the realization of this ambitious goal is the mobilization of all the resources of recipient nations, including traditional medical personnel, who at present serve many unrecognized functions not being met by the Western medical systems.

The WHO definition of health as a state of "complete well-being" has been attacked as "frankly unattainable":

> Did the framers of the 1946 Preamble seriously intend for all family disputes, political contradictions, and the risk of being run over by a truck to fall within the province of the medical system? I think not. More likely, "health" was redefined in this context as the ultimate social intent (Guidotti, personal communication, 1978).

Consequently, the usefulness of this definition as a basis for health planning has been called into question (see, for example, Mechanic, 1968).

A careful consideration of the background of the 1946 Constitution, however, would lead to a different interpretation (see Chasse, 1978). The goal of pursuing "the complete physical, mental and social well-being" of all the people of the earth, and not only of the privileged few, may be construed as the expression of a precarious ethical consensus of the world's leaders arising out of the chaos and destruction of World War II and the Cold War.

In addition to providing a unifying goal for a conflict-torn world, the WHO definition also gave expression to the uneasy recognition, long-growing in the forefront of the

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*The views presented are those of the authors and not necessarily those of the institutions to which they belong.

medical profession, that modern medicine, for all its spectacular successes, was not ushering in a brave new world; many old problems remained unsolved while new problems were being created. If modern medicine was unable to fulfill the unlimited promise that it had held out, then it was necessary to replace the purely physical definition of good health--the absence of disease--with one that called for the total well-being of persons, so that other disciplines and resources could mobilized to pursue that goal.

The Western Medical Model

The limitations of the Western medical model have been amply documented (see Engel, 1977; Fabrega, 1975; Twaddle and Hessler, 1977). Briefly stated, the biomedical model, which dominates the concept of disease in the Western world, "assumes disease to be fully accounted for by deviations from the norm of measurable biological...variables. It leaves no room within its framework for the social, psychological and behavioral dimensions of illness" (Engel, 1977: 130). The model is positivist in that it assumes that only objectively measurable phenomena are "real," and reductionist insomuch as it claims that the language of biochemistry will ultimately suffice to explain such socio-psychological and cultural phenomena as "illness."

The biomedical model has dominated the academic study of disease at least since the Renaissance ushered in the scientific approach to the study of man, but it has gained complete acceptance only since the middle of the 19th century, when the causal link between germs and disease was definitively established. This discovery has been considered "the most powerful single idea in the history of medicine...the single greatest weapon in the so-called conquest of disease" (Twaddle and Hessler, 1977: 11-12). It has made possible a massive and effective assault on acute disease through immunization and treatment, and ushered in a period of optimism in which it seemed possible to eradicate all illness of mankind.

The biomedical model, based largely upon the germ theory of disease, became the basis of medical practice as well as academic medicine at the turn of the 20th century, when medical training was reorganized and put on a scientific basis in the wake of the Flexner Report (1910). Both the academic and the clinical branches of the medical profession readily embraced "the notion of the body as a machine, of disease as the consequence of the breakdown of the machine, and of the doctor's task as repair of the machine" (Engel, 1977: 131). Indeed, the biomedical model has been so spectacularly successful that it in addition to being the only "legitimate" scientific model of disease, it has also become the dominant folk model of disease in the Western world. (A folk model, according to Engel (1977), is an effort at social adaptation; it is a culturally specific belief system used to explain disturbing natural phenomena so that some corrective action may be undertaken.)

While the successes of the new model were beyond all expectations, there was a cost involved. Lost was the pregerm theory conception of the individual as organically related to his environment, and of illness as consisting of behavioral and psychosocial components as well as biological ones. In a dramatic shift, the discovery of germs transformed medicine "from a people-oriented to a disease-oriented profession. Physicians became absorbed in the study of disease, and their mission and training shifted from the care of sick people to the diagnosis and cure of disease" (Twaddle and Hessler, 1977: 12).

Notwithstanding the spectacular successes of the biomedical model (with the underlying basis in germ theory) in eradicating acute disease and reducing mortality, for at least the last generation many doubts have been voiced about its ultimate adequacy (see Twaddle and Hessler, 1977: 132). The decline in morbidity due to acute disease has been accompanied by an increase in the prevalence of chronic disease such as cancer and

diabetes, prompting such noted authorities as microbiologist Rene Dubos (1959) to claim that complete health is a mirage, and that the ultimate conquest of all disease is an unattainable ideal. More recently, a variety of nonbiological factors contributing to disease or correlated with its incidence have been isolated, from environmental carcinogens to accumulated life stresses and the pressures of rapid social change. Consequently, some authors have called for the inclusion of environmental, social and psychological factors in the study and treatment of disease (King, 1972; Coelho and Stein, 1977; Graham and Stevenson, 1963). Indeed, according to some critics, the biomedical model constitutes an impediment to further advances in health care. This is so because the model has systematically excluded nonbiological phenomena from the category of disease or insisted that these phenomena are ultimately explainable in physiochemical terms, and so it has become a dogma, any questioning of whose basic premises constitutes heresy (Fabrega, 1974, 1975; Engel, 1977).

Some authors have suggested alternative models of disease that do not sacrifice the enormous advantages of the biomedical model while at the same time incorporating sociopsychological and cultural aspects left out by that model. Thus Fabrega (1975) calls for a theory of human disease which incorporates culturally specific interpretations of disease, immediate and long-term behavioral effects of the disease (i.e., impairments in routine activities and interactions), and the modes of organization used by the social group to deal with disease. Engel (1977) similarly calls for the systematic incorporation of behavioral and psychosocial data (e.g., information about stress-producing life changes) both in diagnosing and in treating disease:

> "To provide a basis for understanding the determinants of disease and arriving at rational...health care, a medical model must also take in the patient, the social context in which he lives, and the complementary system devised by society to deal with the disruptive effects of illness, that is, the physician role and the health care system. This requires a biopsychosocial model" (1977: 196).

If the need for incorporating nonbiological factors in diagnosing and treating disease is perceived as imperative in Western culture, where the biological model is universally accepted, it is even more compelling in non-Western cultures. This is so because a very large gap between the culturally specific folk model of medicine and the "scientific" model significantly hampers the effectiveness of treatment. Villagers in Gopalpur, India, for example, avoid going to the hospital because they trust the local medicine man more fully (Khare, 1973). Guidotti (1973), for example, points out that a Western physician may fail to diagnose illnesses which are very real to the Modoc Indian in California, or he may overly emphasize a disease which does not greatly bother the Indian: Pain and slowly killing diseases have been a condition of life to the Indian for countless centuries. Guidotti severely indicts the narrow perceptions of Western medicine on the Modoc reservation:

> Western medicine fails to provide the close support and attention that native treatment provides and seems determined to alienate the patient from his family, his land, his culture, and all the other sources from which he draws strength....not only are the [Indian] attitudes towards health different, but the collision of centuries of trival experience and a discordant aggressive alien society have produced perceptions and...constructs which are interpretable only from within the patient's own culture. Indians who have retained their traditional beliefs often see Western medicine as a very superficial, palliative magic which fails to perceive or deal with the profound disharmony in the universal order of things which is illness (Guidotti, 1973: 101-102).

It should be noted parenthetically that a recent effort to establish a Navajo medical school in New Mexico in order to bridge the gap has been enmeshed in bureaucratic delays for the past seven years (Goldberg, 1978).

The Western medical model, then, in addition to encountering the general problems of technology transfer discussed below, is inhibited by the prevalence of alternative folk models that prevent a consensus between doctor and patient, a consensus often considered necessary for effective medical intervention (see Fabrega, 1975). We feel that if alternative folk models are incorporated into the Western health care system, instead of being viewed as competing with it, the chances for effective intervention will be higher. This is in addition to the current role of folk or traditional medicine in filling the gaps left by the severe shortage of Western-trained manpower and facilities.

The Problems of Technology Transfer

The importation of the Western medical system into non-Western countries, in addition to being hampered by the built-in limitations discussed above, also suffers from the general problems confronting the transfer of technology in any sphere.

Spectacularly successful as the Western medical system has been, its effectiveness alone is not enough to assure that once available to the people of a developing country it will be gratefully accepted and widely utilized. Indeed, as we have learned from four decades of research on planned change and the utilization of innovations in such diverse spheres as agriculture and education as well as medicine, the mere availability of an innovation whose technical superiority has been demonstrated is rarely enough to secure adoption (see Rogers and Shoemaker, 1971; Havelock, 1971). Researchers have repeatedly pointed out that the following factors are no less important:

1. Relative cost. Effective though the innovation may be, its sheer cost may limit its usefulness. Medical services at the village level, even when nominally free or available for token fees, are often prohibitively expensive when bus fare and absence from work are calculated. Press (1978) notes, for example, that in Third World cities modern physicians, clinics and hospitals tend to serve the middle and upper classes, whereas the poorest turn to the much cheaper neighborhood healers. Even more unfortunate is the fact that operating modern, Western-donated facilities in the capital city may drain the nation's health budget and thus result in even poorer service to the rural population (see Ahmed, 1977). Indeed Foster (1977) and others believe that prohibitive costs rather than cultural resistance to change is the major obstacle to greater utilization of modern health care.

2. Manpower shortage. It is undeniable that even where modern facilities exist, trained manpower is in desperately short supply and there is not reason to believe the shortage will be alleviated in the near future. In Mali, for example, there were only 108 physicians in 1972 for a population of over 4 million, a ratio of about 40,000 persons per physician. Of these physicians 82 or over three fourths lived in the major cities. The majority of the rural population, therefore, was not served by physicians at all. As Imperator (1975) points out, in the rural areas in Mali modern health facilities are extremely limited, consisting often of a small bush dispensary with a few diagnostic facilities and a handful of medications rather than a fully staffed dispensary with a well-stocked pharmacy. The situation is no better in other African and Asian countries. Compared to one physician per 622 persons in the United States, in Chad there is one physician

per 44,382 persons, in India one physician per 4,162 persons, and in Nepal one physician per 36,540 persons (United Nations Statistical Yearbook, 1976). As Foster (1977) points out, "Paradoxically, the growing acceptance of Western medicine is creating a crisis in most developing countries. There are not now, nor will there be in the foreseeable future, sufficient fully-trained health personnel to meet all health needs." It is not surprising, then, that most the population of the world, especially in rural areas, is served by traditional medicine men, not by modern medical practitioners.

3. Unanticipated consequences of planned change. The benefits of Western medicine in developing countries have been considerable. In Egypt, for example, the crude death rate has dropped from 20 per 1000 in 1948 to 12 per 1000 in 1974, with life expectancy at birth increasing from 36 (males) and 41 (females) in the 1930's to 52 (males) and 54 (females) in 1974. In Brazil the crude death rate dropped to 9 and life expectancy increased from 37 (males and females) to 58 (males) and 61 (females). By comparison, the crude death rate in the United States is 9 and the life expectancy 68 (males) and 76 (females) (United Nations Statistical Yearbook, 1951, 1976). Notwithstanding these gains, the importation of the Western medical system has resulted in some disturbing unanticipated consequences. Chief among these have been overpopulation as a result of reduced mortality, various problems resulting from the prolongation of life beyond its economically productive span, an increase in the prevalence of some chronic diseases, and occasionally excessive dependency on drugs. These have contributed to some disenchantment with modern medicine in the developing countries no less than in the West.

4. Compatibility. One of the most important factors in the adoption of innovations is the perceived compatibility of the innovation with the user's beliefs, values, and behavioral patterns. A now classic example from the field of agricultural extension is the introduction of hybrid seed corn in New Mexico in 1946 (see Rogers and Shoemaker, 1971). The results were spectacular: The yield from the hybrid seed was double the yield from the old seed and within a year over half the farmers adopted the new seed. During the next two years, however, all but three of the farmers who had adopted the new seed discontinued it, although its technical superiority was unquestioned. The reason was that the corn was used to make tortillas for local consumption, not only for animal feed (as the extension agent had assumed), and the farmers' wives disliked the flavor and texture of the new hybrid corn. The innovation had failed despite its undeniable technical superiority because it did not agree with local taste preferences. In another case, as Guidotti (1973) points out in the excerpts quoted above, the incompatibility between Western medicine and the native perceptions of the Modoc Indians in California seriously hampers the utilization of such modern medical care as is available. The Western-trained physician may fail to diagnose or to perceive illnesses which are real to the Indian, or may emphasize diseases which are neither discomforting nor disabling to him. It will be remembered that to the Modoc Indian, as to many millions of the Earth's inhabitants, neither pain nor a slowly killing disease presents a frightening prospect: He has lived with both for countless centuries. A different sort of value clash centers on the importance of privacy, which may prevent the Modoc Indian from revealing his personal affairs to the health worker for fear it might come to the attention of opposing factions in the village and thus be used against him.

The Rockefeller anti-hookworm campaign in Ceylon (Foster, 1977) revealed another example of the need to overcome perceptual and attitudinal incompatibility before health care can be effectively administered. The campaign to eradicate hookworm failed partly

because it was conceived as strictly preventive, and the Ceylonese could not accept the logic of preventing disease through environmental sanitation while their more pressing problems, wounds, abscesses and acute diseases, were going untreated. Fortunately most medical teams today combine preventive with curative care (Foster, 1977).

A different type of value incompatibility is manifested in the resistance of Western-trained health bureaucracies and professionals to changes that may threaten their position or their cherished role expectations. In this respect they are no different from bureaucracies and professionals elsewhere, of course; indeed from human beings and organizations in general. A common example is the frequent reluctance of physicians and nurses to relinquish some of their tasks to subprofessionals, even when the physicians and nurses themselves are hopelessly overburdened and the change will clearly benefit the client population. This was the case in Tanzania, where a reorganization of mother-and-child-health clinics to offer more comprehensive and accessible care was initially opposed by the clinics' staffs (Hart, 1978). As Foster (1977) notes, "Physicians are anxious to use every level of health worker in furthering a health program...but the words 'diagnose' and 'prescribe' evoke the strongest feelings of professional possessiveness." Another bureaucratic hurdle to improving health care delivery is the resistance of clinic staffs to combining preventive and curative care, a practice which, as we saw above, is necessary if the people are to trust the government clinics and utilize them extensively (see Foster, 1977; Hart, 1978). These are but a few examples of entrenched bureaucratic patterns and professional attitudes which, like the traditional values and attitudes of clients, impede change.

These, then, are some of the obstacles to a wider utilization of Western medicine in developing countries, obstacles which prevent Western medicine in these countries from achieving the same spectacular gains as in the West. There is a growing awareness in the international health community that the only way to assure adequate health care in the future is to integrate traditional health resources into the Western medical system and thus to utilize all of the country's resources in the service of effective medical care. Such integration must be done on a limited and careful basis, of course, to prevent the abuses of traditional medical practices from being perpetuated.

What are the systems of medicine now serving the majority of the population in developing countries and what are their implications for the Western medical system?

Traditional Medical Systems

The persistence of traditional conceptions of disease and traditional medical practices side by side with a Western medical system has been amply documented. Thus the government of India's Report of the Committee on Indigenous System of Medicine (1948: 78) says, "It is admitted by all that at the present time Indian medicine ministers to more than 80 percent of the population, and that it is perhaps the only kind of care available in the rural areas." That the situation in India is not greatly different today is attested by Dunn (1976: 154-5):

> In modern India, the indigenous systems remain enormously important as providers of medical care, not only in the villages but also in the cities, and there can be no doubt that Ayuverda and Unani [the scholarly medical traditions of India's past] contribute substantially to the cumulative impact of these systems on Indian health and ill health...There can be little doubt that popular traditional medicine will indefinitely survive, whatever the level of development of cosmopolitan [i.e., Western] health care.

Indeed, as Leslie (1976: 1) points out, "the health concepts and practices of most people in the world today continue traditions that evolved during antiquity," although only a few, such as the Chinese, Ayuverdic and Unani traditions, continue as scholarly as well as popular traditions.

These three Asian systems share in common an overall conception of disease and an overall organization of practice which actually underlie many other traditional systems of medicine (see Lielie, 1976; Opler, 1933; Kiteme, 1976; Imperato, 1975). They are based on a finite number of "humors" which are actually alignments of opposing qualities: hot-cold, wet-dry, male-female, strong-weak, etc. The equilibrium of these qualities maintains health and their disequilibrium causes illness. Human anatomy and physiology are viewed as intimately bound with the social and physical environment, indeed with the cosmos. Hence treatment consists of restoring a state of harmony between the body and the environment as well as within the body. This is done by the manipulation of diet, herbal medications, behavioral modifications, or rituals.

It must be emphasized that while many folk curers are charlatans and quacks, of course, much traditional medicine is firmly grounded in ancient traditions of rational learning and requires lengthy periods of formal education before one is allowed to practice. Leslie (1976: 7), for example, rejects the assumption that all non-Western medicine is unscientific:

> By commonly recognized criteria, Chinese, Ayuverdic, and Arabic medicines are scientific in substantial degrees. They involve the rational use of naturalistic theories to organize and interpret systematic empirical observations. They have explicit, orderly ways of recording and teaching this knowledge, and they have some efficacious methods for promoting health and for curing illness.

Thus Kiteme (1976) reports that the training of African healers is a life-long enterprise, often learned from one's father through an arduous apprenticeship. The apprenticeship requires periods of meditation in the forest, communing with the forces of nature, the mastery of over 200 pharmacological herbs, extensive self-mortification, elaborate rites-depassage and a rigid code of ethics. Cuidotti (1973) similarly reports that the Achumawi shaman, before being admitted to practice, must undergo a long and rigorous training during which he must master and control a variety of "pains" which are considered the etiological factors of disease. To incorporate these "pains" into his body the shaman must cooperate with an interceding spirit, be instructed by an older shaman, and undergo special initiation ceremonies. Thus "Shamanism was not an arbitrary and disorganized body of belief, although it may have degenerated to this in the hands of some quack practitioners after the white invasion"; indeed, fused with insights obtained from mysticism and altered states of consciousness, shamanism has made major contributions to Western pharmacopoeia (Guidotti, 1973). It is not surprising, then, that in many countries native medical traditions are highly organized in associations of practitioners, teaching institutions, and research institutions. This is particularly true in India and in China, where the governments recognize and support the native traditions (see Leslie, 1976). It is harder to accept, or to justify, the disdain commonly manifested by some Western-trained medical practitioners toward native practices, particularly in light of the inadequacy of Western medicine at its current level to meet the needs of the people in many developing nations.

That traditional medical systems serve many needs not being adequately served by Western medicine, in addition to filling the vaccuum created by the shortage of Western-trained manpower and the high cost of training, is undeniable. These functions are both

psychological and sociological, and they differ somewhat between stable traditional societies and those undergoing the dislocations of rapid urbanization and modernization. They include the following:

1. Relief of stress and anxiety caused by the uncertainties of illness. By treating the "whole personality" and by viewing health "as a complex, ecologically contained phenomenon, with natural, super-natural, ritual and social causation" (Ademuwagum, 1969: 1087), they operate on the basis of the same cultural premises as their patients and are able to invoke cultural, religious and psychological support to relieve anxiety. In addition, the medicine men use therapeutic devices which are familiar to the patient, including everyday foods and drinks, familiar taboos and superstitions, and a common language or dialect. This further reduces the anxiety inherent in contact with the unfamiliar world of modern medicine. Khare (1973), for example, reports that in India villagers are often reluctant to seek medical aid outside the village because they cannot expect the same amount of sympathy and care that they get from the native healer. They also trust the native healer more because he does not use unfamiliar treatment. The hospital in the nearby town remains unvisited, because the care it provides is perceived as cold, dehumanizing, and stress-provoking.

2. Cost and convenience. As we have seen above, modern medical care, even when offered free of charge or for a nominal fee by a government clinic, is expensive and inconvenient when we calculate the cost of transportation for a mother with several children or of a day's unpaid absence from work. Press (1978) estimates that of the low-income clientele of a Bogota clinic, 30% to 40% could not be cured either because they could not afford the cost of proper treatment or because their impoverished environment counteracted the effects of antibiotics or other drugs. Women in Moslem societies may be further inhibited from traveling outside their village to seek medical help because of strong cultural restrictions on women's mobility. By contrast, the traditional healer lives nearby, charges affordable fees, and is available day and night.

3. Primary group involvement. Not only do traditional healers manifest a more particularistic, affective and diffuse attitude than do Western medical practitioners (i.e., the former are more personally involved with the patient and tend to treat "the whole person"), but they often involve the entire family as well as the community in the process of diagnosis and treatment. This is not only emotionally gratifying to the patient, but it reinforces his motivation to comply with the prescribed treatment (Ademuwagum, 1969).

4. Control of deviance. For the closely-knit traditional community, traditional medicine may constitute an important mechanism of social control, by diagnosing the cause of disease or ill-fortune and by prescribing corrective measures. An example offered by Opler (1963) is the Indian villager who suddenly became irrational and violent and alarmed his family by loudly criticizing India's national leaders and praising those of Pakistan. A shamanistic rite revealed that the cause of his dangerous behavior was the evil influence of the ghost of a Muslim, and that he was being punished for having stolen an offering to the gods. He was ordered to pay back and the deranged behavior, once isolated and condemned, ceased. In this instance the cause of the deviant behavior was diagnosed as supernatural yet ultimately the doings of the deviant; his dangerous behavior was safely contained. The traditional healer also acts as an agent to control overly lusty appetites, restoring social equilibrium by dramatizing and reinforcing the idea that it is dangerous to covet unattainable wealth and power (see Landy, 1974). Unlike Western medicine, which asks, "How did

I get sick?," traditional medicine asks "Why did I and not my neighbor get sick"? It ultimately provides a satisfying answer couched in terms of some super-human system of retribution and justice. This imparts a sense of resignation and an acceptance of the inevitable (see Hughes, 1978).

Press (1978) and Landy (1974) note the special, additional functions of traditional healers in transtional societies - healers serving recent urban migrants in the teeming cities of developing countries. These functions include the following:

5. Minimizing the trauma of cultural change; the traditional healer as "culture broker." Traditional healers help to maintain the personality integration of the rural migrant in a baffling urban milieu by interpreting illness in familiar terms and by exhibiting familiar behavioral, linguistic and attitudinal patterns. At the same time, the urban folk healer often incorporates scientific terminology into older magical throught patterns, prescribes antibiotics, and refers difficult cases to a government hospital of clinic. He thus helps to ease the migrant's adaptation to modern health usage and to modern cultural patterns in general. The healer's role then, in many cases, has been resynthesized to incorporate modern elements; he has become not a change resistor but a change agent, mediating between the old and the new worlds.

6. Alleviating personal stress resulting from social disorganization, uprooting, and change. In cities wider economic opportunities combine with the attenuation of ascribed status and with increased social mobility to raise the aspiration level of recent rural migrants. Inadequately prepared and disadvantageously located, however, migrants commonly fail to attain their aspirations. As Coelho and Stein (1977: 382) put it, "Their hopes are dashed by shanty towns, social ghettos, underemployment, isolation, lack of assistance, and nostaligia mixed with frustration. Little by little the hoped-for well-being turns into daily frustration; family life disintegrates, health is threatened." Traditional medicine, by encouraging displacement of responsibility for failure from self to other sources, rationalizes failure and alleviates the stress resulting from it. This is different from the function of rural healers in lowering aspirational levels or minimizing attempts to achieve.

7. Fostering ethnic identity. In ethnically heterogeneous cities traditional medicine provides a focus for group identity by distinguishing between ingroup members and nonmembers. It thus supplements other aspects of the group's culture such as religious and ethnic rituals.

When we consider the diverse functions of traditional medicine in rural as well as in urban socieities, it is not surprising that it has survived in spite of the increasingly successful onslaughts of modern medicine. Indeed, it has either survived intact or made a significant comeback even in present-day United States. As the New York Times has recently reported (Vecsey, 1978), spiritual healing, long associated with Pentecostal groups, is rapidly gaining acceptance in Catholic and Episcopal churches. It seems that by appealing to deep-seated psychological cravings, spiritual healing fulfils a need not being met by modern Western medicine men in a society where the dominant folk model is the scientific one. This is much more true in societies with strong nonscientific folk traditions and where Western medicine does not have sufficient manpower to meet the needs of the population.

Conclusions: Towards Integrated Medical Care

In the final account the WHO definition of health as "a state of total well-being" cannot be met without an integrated effort at rural development, since freedom from disease must be complemented by freedom from hunger, from repression, and from ignorance. It is clear that efforts to improve health care must be accompanied by economic development, educational upgrading, and political liberation. The details of such an integrated approach, however, lie ouside the scope of the present paper. For the purpose at hand, it is important to emphasize that in order to meet the goal set by the WHO definition the issue of health manpower needs must be reconsidered in the context of the total national health system. The question to ask is, "What kind of health system do we need"? instead of "What kind of health manpower do we need"?

WHile the question of what kind of health system a country needs depends on its unique sociocultural and economic chracteristics, it is possible to establish some general guidelines. It is clear that health care must be oriented towards serving the needs of all the people in the country and not only the urban or the more well-to-do. The locus of health planning should be on primary health care in the villages rather than on technologically sophisticated health care in the cities, as has been traditionally the case in hard-pressed developing countries attempting to modernize rapidly. Flahault (1976) suggests an integrated hierarchical approach to structuring national health systems. At the lowest level he envisions village dispensaries providing rudimentary primary health care to local communities. Primary care, according to Flahault (1976: 442), "provide simple and effective services that are readily accessible to patients and help to improve the living conditions of individuals and communities." This includes preventing the spread of communicable diseases through vaccination, treatment, and referral; mother and child care; health education for better hygienic and sanitary habits; etc.) Village dispensaries are to be supplemented, supported, and coordinated by rural health centers, by rural hospitals, by district and regional health services, and finally by specialized national institutes and university hospital centers. At each level of centralization the services provided are more specialized and the level of staff training is more advanced. Thus while rural hospitals and regional centers are to be at least partially staffed by fully trained medical personnel, village dispensaries are to be staffed entirely by auxiliary health workers. These workers will originate from the community, receive only a few months' training, and continue to work at their usual occupations. They will need to be supervised and assisted regularly by the central organizations. It is at this point that the Western and the traditional medical cultures intersect: The auxiliary health workers may be recruited from the practitioners of traditional medicine who are willing to undergo training and to submit to supervision. This will assure the compatibility of the health workers' approach with the attitudes and perceptions of the clients, and at the same time will incorporate into the Western medical system alternative folk medical systems which constitute potential sources of resistance to it.

One example of an integrated approach to primary health care is the WHO project in Somalia (see Ahmed and Steinglass, 1978). Following independence in 1960 all practicing physicians left the country. By 1973 there were 193 physicians in the country, of whom 135 were Somali. This meant a ratio of one physician for every 15,500 persons. More than 90% of these physicians worked in urban centers. There were only four dentists, 770 nurses and midwives, and 74 medical laboratory technicians. Since 1960 health planning efforts have followed the traditional pattern in developing countries. In the last decade Somalia has devoted a very large portion of its health budget to establishing a medical school, where the teaching, done primarily by Italian doctors, is largely theoretical and academic, and to expanding the three schools for nurses and midwives, thus still leaving the rural population almost without access to modern medical care. By contrast with this

familiar pattern of centralizing health resources in urban, hospital-based, high quality medical care, WHO has undertaken an innovative experiment to improve primary care to the rural population. Community-based village health workers, recruited partly from the ranks of traditional practitioners, are being trained in rudimentary preventive medicine, nutrition, sanitation, and the treatment of common illnesses. After the training (which lasts about three months) the auxiliary health workers return to the village, where they continue to work at thier usual occupations but are also responsible for community health care. They are supported and supervised by the district staff. To be sure, the project has encountered numerous bureaucratic obstacles, particularly objections to its "alien" origins (it is supported by WHO and thus is not a part of the national health system). It has also created a need for more personnel at the district level to supervise and train the auxiliary health workers, as well as a need for training in community health care at all levels. In any case, the interface between the health bureaucracy and the people it serves has been transformed and the balance has shifted back to the community. For the first time the rural population is being served by Western-trained medical personnel, however rudimentary their training and equipment.

Whether or not traditional medical practitioners can be formally integrated into the national health services, the important point is that health care should be available to all. In order to make "a state of physical, mental and social well-being" available to all people, it is necessary to refocus the efforts of the health care system towards the needs and values of the people in rural communities; it is necessary to bring them into the process of health care which affects their lives.

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FAMILY COMPOSITION AND STRUCTURE IN RELATION TO NUTRITION AND HEALTH PROBLEMS: IMPACT AND MEASUREMENT

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I. INTRODUCTION

Purpose

The purpose of this paper is to aid in conceptualizing and predicting outcome variables for studies of the impact of nutrition and nutrition-related health programs on family composition and structure. An attempt is made to emphasize outcome measures of potential utility to action programs. After a discussion on the relevance of the problem, this paper presents a model of the impact of health and nutrition programs on family size and structure. This model focuses on the most pertinent variables and relationships in the experience of the authors. Section three delineates some basic methodological issues, while section four presents some concrete suggestions for data collection and analysis. A true methodological manual would run to book length. We have merely highlighted several important aspects of data collection and refer the reader to other sources on methodology that we feel are particularly useful.

Relevance

During the course of the conference where this paper was presented, many questions were raised about the validity and utility of evaluation efforts. Many of these comments were directed at the difficulty of "proving" that a given program had a specific impact. For example, how can one know whether an observed drop in morbidity in infants was due to a supplemental feeding program when other factors such as lowered exposure to pathogens due to behavioral changes, vaccinations, etc. may have been operating? There is no question that the objectives of many health and nutrition programs may be realized through a multiplicity of factors which are difficult or impossible to distinguish. A "perfect" evaluation, which explains everything, may be impossible or possible only at great cost. But it may be possible to understand a great deal about your program with 20 percent of the effort of the most comprehensive evaluation. Such comprehensive evaluation may not be a reasonable goal, but the other extreme of rejecting evaluation leaves a program with no parameters to guide it. An empirical assessment of the impact of a program, based on as much evidence as possible, will be better than assuming you are on the right track without ever looking for evidence to support or disprove your assumption.

There appear to be several types of evaluation possible where the impact of health programs is concerned. One type measures the extent to which program goals are achieved, and the extent to which those achievements can be attributed to the program (program impact). A second type measures the effectiveness of the delivery of the services offered. This is actually a measurement of program process, but that process in turn affects the degree to which the program is used, and thus affects its impact. A third, less usual type of evaluation attempts to measure the unintended consequences of a program, its impact in areas other than the district program goals. An example of

the type of goal measured in the first type of evaluation would be "to lower the infant mortality to level 'x' or below." In this case, questions are asked about the best way to do this (vaccinations, food supplementation, treatment of infection, improved economic status of the family, health education for the mother, etc.). As Patrick Marnane says in his paper presented at this conference, the type of experiments (such as treatment for one group and not another) which planners would like often are difficult to carry out for ethical and practical reasons (45). Often, scarce resources dictate "natural" experiments where a type of program may be tried first in one region. Many other times, the outcome of components of the program can be predicted, thus aiding in the assessment of the impact. For example, if you know a measles vaccine is highly effective and it is administered to roughly 80 percent of the children in a given population, a drop in the incidence of measles may be very likely due to the program efforts. Mortality as well as morbidity may be affected, since it is also known that the death rate for measles is higher in a poorly nourished population. Thus, you might also be able to hypothesize that an observed drop in the infant mortality is due, at least in part, to the vaccination program.

The second type of evaluation mentioned above is not of what you decide to do, but how well you do it. This is the evaluation of the efficiency of a program in delivering services. In many ways, this type of evaluation is easier than the first. It is possible to find out who is using your services, how they feel about them, and how to improve the services so that more people will use them and find them easy to use. The value of this type of evaluation should be clear. Obviously, you want to make the most efficient use of your resources. (Unless your goals also include factors such as employing as many people as possible even though that is a less efficient way to deliver services.) Obviously, if your program is poorly delivered, that will affect its impact. Not incidently, that would also make it more difficult to assess the value of a given course of action. A good example of this type of complication is when you assume that people didn't use a contraceptive services program because they didn't want to space or limit their families, when in fact, the women in that society happened to be extremely reluctant to be examined by male physicians, and the program staff included no female physicians.

As discussed previously, impact evaluation has another dimension as well as the two just described. Whatever your goals, your course of action, and your health care delivery system, any or all of these can have unintended consequences. The example of the measles vaccination program described above may be taken a step further. If the infant mortality rate has dropped (supposedly due in part to lower rates of infection), then more children will survive than did previously. If this is not reduced accordingly, then the completed family size will be larger. Depending on economic and other circumstances, this may be either an advantage or a disadvantage to the family. In any case, the growth rate for the population will be higher and this in turn will have a set of impacts such as increased need for jobs, education, health services and other resources. This is an example of the impact of health programs on family size and structure which went largely unpredicted during the early decades in this century when great emphasis was placed on reducing morbidity and mortality. This prediction could have helped societies plan for these changes in population size and structure. While causality can never be proved, such analysis and predictions of likely outcomes are essential for planning, and for feedback to programs. For example, an attempt to improve the nutritional status of families may be thwarted by the increase in family size as more children survive so that family resources may be shared among more people, thus lowering the amount of food available per capita, and lowering the nutritional status of the family once more. Clearly, unintended consequences can be either related or unrelated to program goals.

These unintended consequences of programs call for a broader type of evaluation than has been previously the rule. Family composition and structure are among the variables influencing and being influenced by health and nutrition programs which have received relatively little attention. Because they both affect health behavior and are affected by health programs, it becomes doubly important to measure them and their relationship to such programs.

There is abundant comparative evidence from the wide range of different human societies that familiar social groups play an exceedingly important role in human life ways. From the very earliest periods of human (and even pre-human) history, the primary domestic or household unit has been a major component of human adaptation. In many societies it is the primary unit for procuring, preparing and distributing food. The maintenance and socialization of children, as well as the provision of affective bonds among adults, appear to require stable, long-lasting family clusters, and every human society for which we have adequate data is founded on strong family units.

Without downplaying the importance of larger social groups -- the band, village or more complex city, state and national communities it is clear that the household is a very basic element in the successful maintenance of human life systems. It is to be expected that the nature of this unit, in terms of its organization, composition and structure will vary in relation to particular ecological-economic requirements. That is, different types of environments require different kinds of family organization for their successful exploitation. For example, the division of labor between adult male and female within the household will take quite different forms in an Eskimo band, as compared with a Mexican farming community or an Amazonian horitcultural village. Moreover, intracultural differences in family or household structure reflect this same principle. For example, rural households often have different composition than their urban counterparts, even when cultural origins are the same for both.

Many human groups have families that are quite different from the monogamous, nuclear family structure that EuroAmericans tend to regard as "normal." Widespread in human societies one finds varying types of extended family households that contain more than one marital bond among adult members, often with generational continuity as well. For example, an extended family structure may consist of an older-generation husband-wife pair, plus one, two or more married sons and/or daughters (and their spouses), with their children, all living in the same residential unit and sharing economic resources. Other variations include polygamy (marriage with more than one individual at a time), matrifocal or female-headed households, and the inclusion of non-kin or fictive kin (such as compadres) in the household.

These variations in social group membership suggest that we should distinguish between the concepts of "family" and "household." Typically, social scientists define the household as "a group of people living together in a single domicile, sharing food and other resources, whether or not consanguineally related." Families, on the other hand, do not necessarily all live together. Furthermore, different cultures and subcultures may have very different conceptualizations of what a "family" is and who is included within it. Even within a society the definition may vary with context. In North American usage, for example, the phrase, "just the family," (used in connection with a ceremonial event) may mean husband, wife and unmarried children or a wide network of kinspeople, including aunts, uncles, cousins and so on. For many theoretical and practical purposes (including evaluating the impact of health and nutrition programs) the household, rather than the family is the relevant unit of attention.

In order to focus on the impact of health and nutrition programs on households, the important underlying concept of human adaptation must be taken into account. The

basis of this concept is that much of human behavior is not random, but represents an adaptation to a particular environment (socio-economic as well as physical). Anthropological ecologists theorize that beliefs and behaviors that affect fertility, death and disease rates are major factors in the adaptations of human societies. Over time, every society develops behavioral strategies which maximize gains and minimize losses in its population size relative to particular environments (1). "Good" mini-max strategies improve these relations in terms of the number of individuals particular environments can support, and are therefore adaptive in strictly biological terms. There is good evidence that human societies have always had some control over fertility and mortality. Polgar, Dumond, and Hassan (2, 3, 4) present important evidence that both were lower during pere-historic (neolithic) times than previously thought.

Looking at modern peasant populations, we find very few examples of reproduction at the biologically possible maximum (one child every two years throughout the woman's reproductive span). For example, an anthropologist working in Haiti found that peasants in the cul-de-sac region needed at least two sons and two daughters to survive economically. Given the high infant mortality rate, the mean number of pregnancies per woman (around 9) over 40 was about right to achieve this. Obviously, the women are not having the biologically possible maximum number of pregnancies (5). On the other hand, the mean number of pregnancies for women over 40 in highland Ecuador was 7, resulting in the "right" number of living children for that economic system given the prevailing infant mortality rate. Under a different, more generous subsistence system in lowland Ecuador, the mean number of pregnancies was 9 (The infant mortality in Ecuador is lower than in Haiti) (6).[1] Given the importance of human adaptation as an influence on individual, familial, household, and societal behavior, health and nutrition programs which alter fertility and mortality patterns may strongly affect these social groupings. These effects are all the more important to note because many adaptations and the behaviors which sustain them are often not overtly recognized by the individuals and groups which practice them. This is to say, the behaviors seldom result from a societal meeting where somebody says: "Our death rate just went down because we improved our agricultural production, so it's time to lower the birth rate." Most behaviors evolve over a long period of time, and persist because they are part of a successful adaptation to a given environment. Our assessment of such behaviors is complicated by the fact that environmental conditions may change, but the development of new appropriate behaviors takes time. For example, malaria may be eradicated but certain areas may still be designated "unhealthy" and people will not hunt or fish there, thus neglecting a new resource area. Still, it is essential to observe behavior and not merely ask questions precisely because many behaviors do not result from decisions at the conscious level.

On the other hand, even though many behaviors may not be overtly recognized as influencing mortality and fertility, program planners must be aware that programs are not being introduced into a vacuum, but that considerable behavior change may be necessary. These changes may have unforeseen consequences which are not always favorable in economic or health terms. For example, introducing supplementary feeding to a breast-fed infant might reduce its demand on maternal milk to the extent that the mother might begin to ovulate sooner than otherwise, resulting in the close spacing of the next pregnancy with possible detrimental effects on the mother and both children (7). Obviously, a program would not withhold the supplement in this case, but would inform the mother of the

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[1] For a detailed discussion of adaptation in relation to morbidity and mortality see "Cultural Values and Behaviors Related to Population Change" by S. Scrimshaw (8).

potential early return of fertility and offer her the means of avoiding an unwanted pregnancy.

In this paper we focus on the household as the primary unit of analysis in evaluation. However, it should be clear that this is but one of the several units that must be examined in evaluating programs, with equal attention paid to the program and service delivery components, as well as to the larger political and economic system of which both households and programs are a part. The household unit should not be regarded as either the major etiologic agent in nutrition and health problems, nor as the major obstacle to successful change. However, in some situations it may be necessary to change health-threatening aspects of household organization. For example, if high quality protein foods are very unevenly distributed within the household unit, improving the nutritional status of all members may require a shift in food distribution patterns. Similarly, in many instances family planning and natality reduction may be an essential aspect of a health action program in order to improve the health status of child and women of child bearing age.

Our main theoretical assumption is that the household, through its collective resources, is a key mechanism within which individuals organize their efforts to meet basic needs. Even in nutrition and health programs that do not directly set out to change some aspect of family structure and organization, the changes that are instituted will often bring about structural reorganization of the household unit. Thus it follows that careful monitoring and analysis of changes in this unit, in relation to intervention programs, should be an essential aspect of evaluation.

II. A MODEL FOR CONCEPTUALIZING THE IMPACT OF HEALTH AND NUTRITION PROGRAMS ON FAMILY COMPOSITION AND STRUCTURE

Evaluating the impact of health programs necessitates consideration of many variables and their complex interrelationships. Even when the discussion of impact is limited to family compositions and structure, multiple relationships are involved. The following model (Figure 1) is an attempt to conceptualize some of these relationships in order to define and clarify measurements. We have not included all possible variables, but have selected those that appear to be most significant for the purposes of this conference. The model is constructed around independent variables that describe program inputs, and dependent variables that may reflect the impact of those programs. The intervening variables represent the conditions through which the program may act, and the context variables reflect the effects of larger social forces that also influence changes in the dependent variables over time. It should be noted that the division of components into "dependent," "intervening," "independent" and "context" variables is for heuristic purposes only. In other situations (e.g., epidemiological research) the status of these components may change with respect to their categorization as "independent," "dependent" and so on. In reality these components are related in a systematic fashion, with multiple and complex interactions.

Independent variables in the Model

1. Programs

In the usual case programs of planned change in the health field involve some intervention (e.g. in the form of education, medical technology, health aides or a service facility) that introduces aspects of modern, biomedically-based health care into areas of high infant mortality, chronic malnutrition, specific serious diseases

(e.g. malaria, schistosomiasis) or combinations of these. The interventions, or inputs, are often introduced into a geographic area, especially when they involve day-to-day activities of health professionals and paraprofessionals. Thus, the independent variables are, in principle, observable in the form of specific administrative procedures such as food supplements, numbers of immunizations, measures to eradicate mosquitoes and introduction of specific family planning information by identifiable personnel.

Despite the apparent clarity of such inputs, it is important to realize that programs with presumably similar inputs may have differential impact depending on the local acceptability of the program content and the ways in which the program is presented or administered. "Medicine and Politics in a Mexican Village" by Oscar Lewis and several other articles in the same anthology, Health Culture and Community (9), provide excellent examples of this point. Because of such differential program impacts, input variables must always be carefully observed at the point of impact in terms of both content and administration (mode of delivery). An article on "Cultural and Other Practical Considerations in the Evaluation of Maternal and Child Health Services" by S. Srimshaw (10) contains a detailed discussion on the assessment of these two factors as they affect program acceptability.

2. Context Variables

There are many variables that may affect (and be affected by) nutrition and health programs, which for the purposes of this paper can be called context variables, as they are part of the wider community picture. The most relevant of these for nutrition and health programs include: education, economic status, migration, political forces and economic forces. A clean separation of variables is often not possible. Under the circumstances within which families and groups live, behavioral outcomes are often the results of complex interactions of economic, psychological, cultural, biomedical, and other factors. Even the best research designs cannot cope with all the "extraneous" variables that can affect outcomes.

In one example, T. Marchione (11) developed a rigorous before-and-after methodology to test the effects of a health aides program in a Caribbean country. During the period of the study (1973 to 1976) the people affected by the health aides program showed improvement in nutritional status (as measured in the heights and weights of small children). After careful statistical assessment of the results, Marchione concluded that the improvements were indeed real, but they were apparently brought about by factors beyond the program, notably changes in cropping patterns in response to world-wide price fluctuations, as well as national land use policies. Economic forces, especially as they impact on food production, are often the most significant contextual, or confounding, variables.

Within the household, both economic status and educational status are important variables which often influence factors such as the use of health programs and the effectiveness of intervention at the household level.[2] Other important variables that affect household composition and related characteristics are migration and patterns by which additional persons (kin and non-kin) are incorporated into household units.

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[2] These two variables are each the major focus of other keynote papers prepared for this conference. Consequently, they will not be discussed in detail here.

There are very few places in the world that remain unaffected by urban in-migration. In many areas of Latin America, as elsewhere, practically every family is affected directly, usually through outmigration of younger members (12, 13). Research on the impact of health programs on family composition and structure must therefore somehow take into account the effects of this migration.

At the receiving end of the migration patterns (in towns and cities) there is often the development of households with multiple additions, as relatives from the rural homelands arrive to seek their fortunes. Ugalde and associates (14) documented the striking importance of kinship in the entire pattern of cityward migration, noting that "Among migrants (to Mexico City) ... 53 percent received help in finding housing, and 48 percent received temporary food and shelter from their Mexico City relatives." The large household sizes they documented in Cd. Juarez, Mexico City, Cali and Barranquilla reflect the influx of kinfold rather than high birth rates in the city. In Mexico City (six neighborhoods) 38 percent of households had nine or more people, in Barranquilla the figure was 15 percent, while 27 percent of households in a "suburb" of Cd. Juarez had nine or more persons.

In another study, focused on Ecuador, urban households were larger than either coastal or mountain rural areas. Also, more than half the urban households consisted of extended families, as compared to 40 percent of the rural coastal households and 24 percent of the mountain households. The same study revealed a great deal of communication and visiting between family members in rural and urban areas. Clearly, these interchanges can be hypothesized to influence the acceptability of programs focused on changing health behavior, through people's increasing exposure to new ideas (6).

Intervening Variables

1. Health Behavior

Program use, as reflected in actual health behavior, is classified as an intervening variable for the purposes of this analysis. The content and administration of programs and the context variables are all seen as affecting program use. Health behavior in turn affects rates of morbidity, mortality and fertility as well as household composition and structure. However, it may be affected by them as well. (These concepts will be discussed and illustrated in the next few pages).

2. Morbidity, Mortality and Fertility

The inputs from health and nutrition programs are generally expected to have a direct impact on rates of morbidity, mortality and fertility. In almost all cases reduction in these rates is the hoped for outcome. The reductions in illness, untimely deaths, and unwanted pregnancies in their turn have effects on a variety of social, sultural and economic features. Therefore, as indicated in Figure I we consider the changes in morbidity, mortality and natality to be intervening variables, although they may also be considered dependent variables since they are affected by health behavior and by household (and family) size and composition.

3. Household Size and Composition

For the purpose of this analysis, household size and composition are mainly considered dependent variables. However, it must be emphasized that these variables may affect and be affected by the context variables, health behavior, and by morbidity, mortality and fertility. Thus, in some cases they act as intervening variables.

Dependent Variables

As noted above, we have selected a set of concepts from the general domain of household (family) composition and structure for discussion here. This list is not a comprehensive set of all potentially relevant variables that could be categorized under the general rubric of "composition and structure." Rather, it represents a number of main elements that appear to us to be of some significance.

However, defined in particular societies, household or family composition includes the following variables:

1. size
2. complexity
3. age structure
4. number of living children
5. child spacing

These variables are frequently measured in research projects and action programs concerned with health and nutrition. However useful such data are, additional meaning can be acquired through the examination of other variables. The broader understanding of the basic household composition variables is particularly important to the question at hand, which seeks to understand the impact of programs on households. These additional variables deal with household structure.

Household structure is a more abstract conceptualization that can refer to a variety of features of households. We have chosen to focus on the following:

6. relative position of house hold members
7. patterns of residence
8. dominance or decision-making patterns
9. the cycle of domestic groups
10. inter-household relations

1. Household Composition

As discussed above, family size can be conceptualized as household size. A household can range from one individual to many, representing several generations. Frequently the smallest unit consists of a woman and her dependent children. Complexity, on the other hand, refers to the types of people or relationships that are represented in the household. A household may include people who are related by marriage, by consanguineal (blood) ties of varying degrees of closeness and by people who have no biological or sanctioned sexual relationships with other household members. Households will also vary in terms of their age structure. They may include a wide distribution of individuals across the age range from infancy to extreme old age, or a much narrower range, as would be the case when the household included only one or two generations.

While the variables of household size, age range and complexity may be difficult to separate, it is sometimes necessary to do so in order to assess the impact of health and nutrition programs. For example, it can be assumed that household size is not totally random, but has some relationship to efficiency in the feeding and maintenance of the group. Health programs may create changes in efficient household size. For example, some dietary patterns are facilitated by the presence of several meal-makers, thus encouraging extended family organization. If new, more individualized food preparation is introduced, households may tend toward smaller size.

Family composition may be affected if a program undermines the authority of an individual, which then leads to conflict in the family. For example, if a grandmother's advice on child care and feeding is considered wrong by the program, the result may be that the mother gives in to the grandmother (the health program loses) or the grandmother is defied (grandmother loses). A classic example of a program affecting family composition is the welfare system in the United States, where less aid (or no aid) is given to households that include a healthy adult male. Families may split up to get aid, or the adult male may attempt to live with his family secretly.

Since health and nutrition programs often focus on only some members of a household (e.g. children under five, pregnant women), it is important to assess the impact of this feature. Does this focus alienate other members and discourage program use by favoring only some individuals? Does it improve health for some members leaving the others free to spend scarce resources on their own health and feeding? Is the program concentrating on the right individual to achieve its goals?

An example of the latter question is provided by some recent research on the energy expenditures and nutritional needs of adult males in a Latin American country on the assumption that improving their nutritional status would permit them to work harder and earn more money, which would then be used to improve the nutritional status of the entire family. In our opinion, it is impossible to make this type of assumption without further investigation. How does the program director know that additional energy will go into economically productive labor? If it does, how does one know that any extra money earned will be spent on food, or even on the rest of the family? It may go towards other items, such as a radio, lottery tickets, or beer.

Concerned about this issue, one investigator in Guatemala did a comparative study of male and female activities. She found that although men did considerable economically productive work, they had much more free time than the women. The women in the same community started their day much earlier than the men, getting up to make tortillas and prepare other food for the family. They also invested some time in animal care (mostly pigs and chickens) and small garden plots. Then they did agricultural work on a plantation (often walking long distances to work). At some times of the year, this agricultural work was identical to the work the men were engaged in (e.g. picking coffee). All this was done in addition to child care, washing and other household work, and frequently, pregnancy or lactation (15). Obviously, this situation calls for a careful assessment of who will benefit the family most through inclusion in a nutrition program.

Two components that health and nutrition programs can be expected to affect are the number of living children and the child spacing. To accurately assess program impact these variables should be derived from carefully collected fertility histories. These histories should include all pregnancies and their outcomes (induced or spontaneous abortion, stillbirth, perinatal, neonatal, and subsequent deaths). While

the number and spacing of living children relate to the current household size and composition, health and nutrition programs are likely to alter these variables through the reduction of mortality at all stages from conception on, and changes in fertility when contraception is sought. A further complication in assessing program impact is derived from evidence that differences in spacing between births can affect the child survival. In Ecuador this has been observed for both the first and the second child in a birth interval pair, although the second child was more strongly affected than the first. For example, the second child of a closely spaced pair had a slightly higher probability of not surviving if its older sibling was alive when the second child was conceived (7). Thus, it is possible that a program could increase the chances for survival for some children while decreasing them for others, especially if one of the program impacts was closer spacing. Clearly, the biomedical and behavioral factors behind such mortality differentials need to be more thoroughly explored.

Another important aspect of both the number of living children and birth intervals is that cultural norms about them are not always overtly recognized by individuals or groups (8). As previously mentioned, family size and spacing vary widely across human societies, and are usually appropriate for the social and economic circumstances of each group (except where rapid change has occurred in some relevant area such as economic factors, mortality rates or land use patterns and family size norms and the accompanying behaviors have not yet changed to adjust to the new situation). The categories of behaviors which affect family size and spacing have been described as "intervening fertility variables" by Davis and Blake. Their article on the subject is an essential guide to any researcher attempting to measure behavior related to fertility and family size (16).

The significance for health and nutrition programs of the intervening fertility variables and both overt and covert norms about family size and spacing is that these norms and behaviors may be affected by and affect program use. For example, if cultural norms and behaviors lead to an average completed family size of five children (with about eight pregnancies in order to end up with the five), and the program succeeds in reducing mortality so that more of the eight survive, families may find themselves emotionally and finally overwhelmed and reduce their use of the program, thus possibly leading to an increased infant and child mortality once again. If cultural norms are recognized, the program may be able to substitute the option of child spacing or limiting to maintain the previous economically feasible size of five. Conversely, mortality rates may have been so high prior to the program that the community needs and welcomes the additional children who are surviving. What is their impact on family and household structure, and on the economic situation of the family? In some instances, their labor may improve the household's economic situation (17). In the Javanese case, Benjamin White has argued that wetland rice cultivation provided good opportunities for intensifying agricultural production whenever additional labor, even child labor, became available (18). In such a situation the psychological and economic costs of child and maternal morbidity and mortality were apparently balanced off against the need for greater economic productivity and the advantages of a large family labor force. Similarly, in Latin America the steady migration of young people to the cities may provide strong motivation to maintain large families in order to increase the likelihood of economic largesse from urbanized offspring, as well as to improve the possibility of keeping one or two at home to insure one's old age.

At this point not enough is known about family and community responses to rapid drops in infant mortality and changes in pregnancy spacing. The collection of data to help understand these factors should be an important part of the assessment of program impact on family size and structure.

2. Household Structure

In a cross-cultural perspective, the matter of where a newly married couple resides is of some significance for understanding a number of aspects of familial and societal functioning. In the contemporary urban world, the preference is overwhelmingly for neolocal residence; that is, the new couple establishes an independent household, apart from relatives. More common historically, was the pattern in which the new couple resided either with the young husband's people (patrilocal residence) of the bride's people (matrilocal residence). In some societies the couple spends a period with each "side" of the family. Other variations (more frequently encountered in Africa and Oceania) include residence with the groom's maternal uncle or the bride's mother's brother.

Whether a couple sets up an independent household or is incorporated into an on-going household as part of a matrilocal or patrilocal extended family may have important effects on natality patterns, as well as other aspects of health (16, 19, 20). While the debate about the relationship of extended family structure to high fertility is as yet unresolved, there can be little doubt that health, nutrition, and other development programs should be examined for possible influences on residence patterns.

The concept of family power structure or patterns of dominance in decision-making has been of interest to sociologists, anthropologists and other students of family organization. It is also often directly relevant to the interests of health care workers and administrators, for in many situations the nature of family decision-making can significantly inhibit (or facilitate) the utilization of services. For example, in families in which adult women do not have the authority to make decisions about health matters, failure to have children vaccinated, or to seek prenatal services, may reflect the viewpoint of the male household head, rather than the female. In such circumstances, securing the confidence and the cooperation of the male decision-maker is a prerequisite to expanding the utilization of the program.

There is a general tendency to assume that the nature of family decision-making is culturally-determined and homogenous within a community. Thus, the concept of machismo is widely regarded as the "cause" of male dominance in Latin American family power structure. Without denying the contribution of cultural ideas such as machismo, it is also important to explore the extent to which the composition of the family influences family decision-making. For example, there is considerable ethnographic evidence, from many parts of the world, to suggest that the status of a woman, within a family is drastically altered by age, motherhood, and becoming a "mother-in-law." In many communities the low status mother immediately becomes a high status person with considerable decision-making authority and control over resources when her son marries and brings his bride to her household. Recent analyses of women as decision-makers in Latin America demonstrate this same increase in power with age and status changes, as well as a certain amount of cover decision-making (for example in the allocation of family resources for children) which is concealed from men (21, 22, 23). Thus, we may hypothesize that the composition of the family may have considerable effect on family power structure, and hence, health and nutrition programs that alter family composition can also have an impact on decision-making.

Furthermore, it is important to note that health and nutrition programs can directly affect family authority under particular kinds of administrative circumstances. As mentioned previously, in the United States the federal program of Aid to Dependent Children, which is available only to children in fatherless homes,

apparently leads to a situation in which a woman must assume authority, with respect to the government agencies, although her husband or male partner may actually be present in the household, unbeknownst to the authorities. Alternatively, when mothers of young children are designated as the recipients of extra food in a supplementation program, a mother's status as "procurer of food" for the family may change her role in decision-making in other aspects of household and family life.

Another family component whose position may be influenced by health programs is the elderly. Not only may their authority be altered by programs, but changes in family size or structure may affect other factors such as migration, leaving an older and economically marginal segment in traditional villages.

Unfortunately, even in areas with available modern health services, the chronic diseases of the elderly often receive relatively less attention. In part the investment in medical attention for the elderly is not made because it has little economic pay-off; on the other hand, the infirmities of old age are often beyond the reaches of even advanced medical science.

More detailed study of the effects of health programs on the roles of elderly people in families is much needed. Such studies should include attention to the changing roles of the elderly within household structures, and the effects of differential health modernization -- in which certain types of health care become widely available (e.g. immunizations) while specialized long-term care and treatment of chronic disease is neglected.

The concept of the cycle of domestic groups is widely used in anthropology to denote changes through time in the structure and composition of households (24). Parallel to the idea of the life cycle of the individual -- from childhood to maturity to senescense -- households can also be said to have a cycle. In many contemporary situations the cycle begins with marriage and ends with the death of the spouses, but in systems with extended family organization, the cycle is one of expansion and contraction, without a clear "beginning" or "ending."

From the foregoing description it should be clear that health and nutrition programs that alter longevity, fertility, or age of menarche will have, over time, an impact on household domestic cycles.

In the event that improved health and nutrition standards, along with other changes in living standards, increase both the number of offspring and the life expectancies of people, then some aspects of this cycle may be extended, with a longer post-child-bearing period for the senior generation and a longer overall adult career during which families and individuals may expand and "improve" their lands, domiciles, and other economic holdings. Such a lengthening of the family career, may, however, produce serious new problems if it is accompanied by increased dependency ratios. One of the solutions to the prospect of longer careers and heavier economic burdens (or lack of locally available resources) is outmigration to urban centers, which creates yet another set of problems in both rural and urban areas.

Linkages Between the Independent, Intervening and Dependent Variables

Although the public health and social sciences literature is full of hypotheses and conjuectures about the effects of health and nutrition programs, very little research has been directed to the documentation and analysis of their impact on families and households.

Therefore many of the suggestions in the preceding discussion and in the example below are hypotheses and hunches to be explored, although isolated and inconclusive evidence supports some of these effects.

1. Increase in Family Size

There is one clear and relatively unambiguous effect of health and nutrition programs that has been documented widely. Throughout most of Latin America, as in most of the world, dramatic decreases in infant mortality have been recorded, followed by rapid population increases. The following example, from Ecuador can be duplicated for many other countries.

Table 1

FERTILITY AND MORTALITY IN ECUADOR (25, 26)

Year	Birth Rate (per 1,000)	Death Rate (per 1,000)	Growth Rate
1920	47.9	30.9	1.7%
1940	47.1	25.9	2.2%
1960	47.3	14.9	3.3%
1965	44.0	11.7	3.2%

Ecador's 1975 birth rate was 41.8, while the death rate was 9.5, resulting in a growth rate of 3.2 (27). At that rate, Ecuador's population can be expected to double every 22 years. It should be noted that the birth rate actually declined slightly over the period covered, but the growth rate increased dramatically as a result of falling infant mortality rates. Retrospective fertility histories collected in 1971 revealed another interesting occurrence. As infant mortality rates fell during the 1960s, so did the percentage of live births. The difference was reflected in increased rates of induced abortion. This is a clear indicator of attempts to regulate family size. In this case, spacing was also a factor as abortion began to be induced for the second pregnancy, and was most frequent for the second through sixth pregnancies. This is clearly not a population of desperate grand multiparas, but of younger women of lower parity making decisions about their fertility before it becomes a serious problem (7).

2. Increased Ratio of Dependents to Adults

As infant mortality rates decline rapidly, there is a net increase in the percentage of children per family unit or per adult "breadwinner." For example, in Ecuador in 1975, 46 percent of the population was under 15. The demographic assumption that individuals under fifteen are all "dependent" is, of course, an unrealistic view of the world in terms of the ages when children in many socieites become economically productive. In most cases, children contribute to the household long before age fifteen (17).

3. Increased Morbidity Burden in Families with Hereditary Illness

Modern health programs include some instances in which improved medical systems add to family burdens of caring for the sick. One example of this is the problem

of thalassemia, which is especially prevalent in the Eastern Mediterranean and certain other parts of the Old World. In earlier times children with thalassemia (Cooley's Anemia) usually lived for only a few months or at most three or four years. Now, with extension programs of blood transfusions and drugs, individuals can often be maintained into adolescence and beyond. Families with two or even three living thalassemic children are therefore now possible with the new medical procedures. Families with such children often carry heavy burdens of psychological tensions (guilt, anxiety, etc.), as well as the financial and logistic costs of caring for the children who usually become progressively more deformed and sickly in their terminal years (28). There are other types of cases comparable to that of thalassemia.

4. Outmigration and Loss of Household Members

Earlier we treated outmigration as a context variable, but in many areas population pressures brought about by sharply decreased infant mortality may directly force outmigration, as families and individuals seek solutions to their economic circumstances. Outmigration, for economic reasons, has most probably followed as a direct consequence of health programs in many parts of the world. In some areas the first to migrate are the young men and women, a practice that not only affects family structure but community life as well (6).

Migration due to population pressure is not generally separable from the movements of people responding to other factors, so it is perhaps nearly impossible to analyze the direct contribution of health/nutrition programs to changes in family composition.

Marchione (11) in his study of a Health Aide Program in Jamaica, suggests an interesting effect on household structure, based on a factor analysis of household and socio-economic variables. His factor of "family cohesion" was correlated with nutrition levels of the young children in the sample. While the relationship may be one in which greater family cohesion affects children's health and nutrition, he also poses the hypothesis that, at least in part, the health and nutrition status in households may be contributing to improved cohesiveness among the parents. In this case the factor of "family cohesiveness" included items such as "presence of father in the home," "contribution of father to support of child," and "presence of mother in home."

Clear demonstration of the effects of health and nutrition status on household cohesiveness, including reduced divorce and separation rates, will require a very tight research design, probably incorporating before-and-after measurements in order to properly assess the chronological sequences of changes.

5. Summary

The actual effects of a health and nutrition program will, of course, be determined by a variety of factors that will vary from one cultural-ecological situation to another, and from one type of program to another. Since the primary purposes of this paper are to develop a framework for assessing impact and methodological guidelines for carrying out such assessments, we are less concerned with predicting outcomes before programs are instituted. That is, the extraordinarily difficult problem of accurate prediction of the impact of a health program is not a central focus of discussion here. This would follow more appropriately from basic research that monitors existing programs and programs that are about to be initiated. In the following section we will take up the methodological issues of impact studies.

III. BASIC METHODOLOGICAL ISSUES

Most current health and nutrition programs have developed out of Western medical and public health traditions. As discussed by Rosenfield in a recent paper on "Modern Medicine and the Delivery of Health Services," there is no single system which can be described as "Western" medicine (29). Nonetheless, what today is known as "Western" medicine is largely derived from European and American practices. In addition, it is only relatively recently (the past 50 years) that this medicine has had a "scientific" basis, has been able to systematically understand many diseases and produce what Dubos calls "the magic bullets of medicine" (29, 30). In a relatively short time, Western medicine has come to dominate many of the responses to health and illness throughout the world (30, 31). However, there remain many health problems that do not yield to Western biomedicine for a variety of reasons.

Many dedicated practitioners of Western medicine find themselves uncomfortable with the levels of disease that continue to coexist in the world with Western medicine. For example, John Bryant states in the preface to his book on Health and the Developing World that "Large numbers of the world's people, perhaps more than half, have no access to health care at all, and for many of the rest the care they receive does not answer the problems they have" (32). One reason for the latter problem is that programs based on Western medical premises may run into problems when applied cross-culturally without consideration of the relevant cross-cultural variations. Health, Culture and Community edited by Benjamin Paul (9) provides an excellent set of case studies on this problem. For example, an early INCAP program had difficulty due to several factions in the village which the health workers were unaware of and did not relate to equally, thus alienating part of the community. It the same program, beliefs about the intention of the project (they are fattening our children so they can send them to the U.S. to be eaten) and about the nonreplaceability of blood drawn for analysis also created problems (9).

Although many elements of Latin American culture are closely related to elements of European culture, many are also based on preHispanic cultures. There has been a blending and an evolution of cutlural traits which result in much variation between and within countries. In addition, there is much variation between socio-economic groups in Latin America, as elsewhere. PAHO has long been aware of this as an important factor in health care for this hemisphere. In fact, this conference reflects the need felt by PAHO representatives and health professionals in general to go beyond the evaluation techniques which currently predominate and to produce sensitive cross-cultural measures of program impact. This task is made all the more difficult by the fact that there is an inherent contradiction between the concept of "sensitive cross-cultural measures" and the use of a single, absolutely identical research technique in all cases. Because the cultures vary, one technique will not measure the same thing across all cultures no matter how badly uniformity is desired. The same approach does not have the same meaning or yield comparable results in every situation. The question, then, is how to come as close as possible to the goal of measurements that are both meaningful and accurate, and applicable cross-culturally, so that comparisons can be made between programs and their impacts.

A Qualitative-Quantitative Approach to Data-Gathering

One answer to the problem of achieving measurements that are both meaningful and accurate is to attempt to take advantage of the more qualitative methods that have been developed by ethnographers and to wed these with the quantitative techniques that have proved to be indeispensable to the development of verifiable, scientific knowledge. A period of intensive participant-observation and informal interviewing in the community or

communities in which the evaluation is being carried out serves several important functions:

1. It provides information from which to generate hypotheses about program impact at the local level that may not be apparent from the outside.

2. It provides information on culture patterns and family lifestyles on which specific questions in formal quantified surveys can be based.

3. It yields insights about local language usage and helps the evaluator to design questions that will be understood and will not offend or confuse respondents. For example, one of the authors (Scrimshaw) found that among Puerto Rican women in New York City, the question, "Sabe como evitar los hijos?" elicited the information about whether or not the respondent had knowledge of contraceptive techniques. In Ecuador the same question brought a response from women that was a vigorous denial that they practiced abortion: "no me sacaria un hihi." In order to find out about a woman's knowledge of contraceptives, the question had to be phrased as, "Sabe como evitar quedar enciнta?" Also, in nearly every culture there are some subjects which are not openly discussed. Chen and Murray present an excellent discussion of this based on research in Haiti which should be consulted by anyone planning survey research in Latin America (34).

4. It produces data on local conceptions of health and illness, that may influence people's responses to formal questions. For example, a mother may say that her baby is currently "well" but the local definition of a well child includes a child with parasites ("all children have worms"), edema ("a plump baby is healthy") and so on.

3. It provides the evaluator with general information about life in the community that is extremely helpful in interpreting the statistical results of the quantitative data.

As suggested by the last item, qualitative, descriptive information is important not only in the early phases of evaluation research, but in later phases as well. Usually the results of the quantitative data analysis will be presented in the form of correlation coefficients, tests of independence, tests of significance and sometimes in the form of multivariate analyses, with complex causal modeling, path analysis or other similar techniques. If the research has been carefully done and the data base itself is valid, then the patterns that emerge from the statistical analysis should be referable back to the reality of life in the community. That is, it should be possible to identify cases (households and individuals) that exemplify the patterns revealed in the statistical analyses. Thus the use of "case studies" or "case histories" (a type of qualitative data) not only provides a check on the statistical manipulations, it also gives a sense of reality to the evaluation report and helps planners and administrators to interpret and judge the intervention program. In projects which have used and compared a combination of quantitative and qualitative methods, both the reliability and validity of the results have been judged higher (6, 33, 34).

Initial Considerations

When the central aim of the research is the examination of changes in household composition and structure, there is no practical methodological substitute for direct and intensive interviewing in samples of households. Furthermore, from the discussion of the variables in the preceding part of the paper, it would appear that a considerable amount

of data on age, economic status, migration history, social activities, as well as fertility and morbidity history must be collected from each household if one is to sort out the effects of theprogram from the welter of competing and confounding variables. Effective household interviewing under such circumstances may call for a complex interview schedule that may require several hours or several visits to administer.

Given the need for intensive interviewing in households, it is often necessary to settle for fairly small samples. This is not the only research strategy available, but except for unusual circumstances of abundant research resources, it appears to have the most likelihood of success, given the complexities involved. That is, when the choice must be made between a large sample and less intensive coverage vs. a smaller sample with more intensive interviewing, the latter is preferable in the matter of evaluating impact on the dependent variables discussed above.

Basic Methods of Data Collection

As mentioned above, a paper of this length cannot be a manual for field research. However, we feel that it may be useful to offer some suggestions regarding specific methods that are important in the evaluation of the impact of health and nutrition programs.

1. Interview Schedule Design

Interview schedule design is a fine art, a fact which is frequently ignored in the haste to conduct surveys. High quality in interview schedule design is essential. Data based on poor and poorly organized questions is misleading and inaccurate no matter how large or random the sample, or how sophisticated the analysis. In-depth knowledge of the culture to be studied is very important, and pre-testing of interviewing schedules is essential. Much thought must be given to the wording of questions, the order of questions, and their appropriateness. In general, the least sensitive information is collected first, the more sensitive questions are asked after some rapport has been established. Care must also be taken to ask only questions which are really necessary for evaluation, in order to keep the interview from becoming too long.

Another important aspect of survey research is great care in interviewer selection, training, and supervision. The interviewer must be acceptable to the community in terms of age, sex, status and mode of interaction. He or she must be thoroughly familiar with the interview schedule and the concepts behind it. The training should emphasize accuracy in data collection and respect for the interviewee. We have found that optimum motivation and accuracy are not found by paying the interviewers by the interview, nor at a fixed rate (daily, weekly or monthly) alone. Instead, half-salary (the going rate for social workers is one possible guideline for establishing salary) should be paid during training, with the understanding that the best of the trainees will be hired and the others will be stand-bys. Then, the basic salary should be paid with a bonus (the amount depends on the duration of the survey) to be paid upon successful completion of the survey. The interviewers are clearly informed that their performance is evaluated on the basis of accuracy (first priority) and quantity (a reasonable amount of work per day). Individuals who perform poorly, particularly on the first count, should be dismissed, thereby losing the bonus. Interviewer team spirit is also important. This can be encouraged by involving them in the content of the project and holding periodic feedback sessions on the progress of the data collection. Supervisors are also needed for leadership, checks on accuracy of interview, and trouble-shooting. Using these approaches, one of us was able to run a survey with 30 interviewers and six supervisors, which involved two months of data collection under difficult conditions (urban high crime areas, swamps, extremely hot weather, etc.). Only one person was dismissed (a

supervisor was unwilling to proceed accurately with the sampling). All others completed the work, saying that it had been difficult, but that their involvement in the project and the final bonus had been important incentives (35).

Clearly, interview schedule design should involve consultation with more detailed sources. Several which we have found to be useful are Survey Research Methods by E. Babbie (36), Survey Research by C. Backstrom and G. Hursh (37), and sections in Qualitative Analysis by P. Lazerfeld (38) and Anthropological Research: The Structure of Inquiry by P.J. Pelto and G. Pelto (33).

2. Open-Ended Questions

Many of the interview techniques essential to research on household composition require quite structured, even pre-coded questions. In complex interviews it is preferable, where possible, that questions be pre-coded for computerized processing (after careful pretesting). On the other hand, significant areas of household structure, concerning topics such as male-and-female roles, the place of elderly people in household interaction, and other topics, may need to be explored by means of other techniques.

Open-ended questions may produce a wide array of responses with content much different from predicted cut-and-dried answers. In those many communities where people are fairly open about discussing such topics, it may be quite productive to frame open questions such as:

"What are the daily activities of the grandfather in your household?"

(direct question to elderly person) "Could you tell me about how your life and activities are different now from ten years ago?"

(direct question to adult woman of household) "What are the differences between males and females in deciding things and organizing the work of the family?"

If open-ended questions of this sort produce lengthy replies, the data can be extremely useful if structured content analysis of the replies is carrier out. Often researchers can establish lists of "themes" or "positive and negative attributes," with clear rules for coding, in order to convert the qualitative statements into quantifiable enumerations of such contents as:

1. "frequency of joint male-female tasks"

2. "positivism of emotions toward others"

3. "number of mentions of death"

4. "ratio of instrumental vs. non-instrumental tasks" and others.

3. Pictures and Other Controlled Stimuli

Many researchers have found it useful to employ indirect methods in seeking information, especially about more sensitive subjects. One standard technique is to show each respondent some pictures, asking them to construct fictional narratives such as: "tell me what is happening in this scene, and tell what will happen afterwards..." This picture technique is sometimes used for eliciting psychological data,

but it serves equally well to provide direct expressions about family roles, inter-family interactions, and other topics. The general assumption is made that people will usually project quite realistic and true-to-life content into their functional narratives. George and Louise Spindler and associates used this technique to gather information about "instrumental activities" among the Blood Indians in Alberta (39).

The Spindlers' pictures show individuals engaged in various instrumental tasks such as farming, office work, roping cattle, as well as more traditional roles including healing and ceremonial activity. This use of pictures to draw out information concerning family roles and structures is best operationalized with pictures (even photographs) tailored to details of local conditions and cultural patterns.

4. Participant Observation

Participant observation is discussed in detail in Anthropological Research: The Structure of Inquiry (33) and in Field Projects in Anthropology (40). For the collection of the type of data discussed in this paper, participant observation is useful during the pre-survey design stage, in observing use of health programs and health behavior (10), and in observing interactions among household members related to aspects of family structure and dynamics. In sum, participant observation is important for the understanding of human behavior, and for comparison with data collected by other methods. It is particularly important for researchers and administrators in terms of helping them develop clear and understandable perspectives on the users of health programs.

5. Direct Observation

In general it is advisable that research data for testing complex questions about effects on family composition and structure be drawn from several different sources, in order to provide cross-checking of significant relationships and descriptive (contextual) data. Some important data are available through direct observation, including location of household, number of rooms, "type of neighborhood," "socio-economic level" (as estimated from house construction, furnishings, etc.) Often it is possible to construct "material style of life" ratings for households and families from direct observation, in the course of interviewing on other significant variables.

6. Archival Data and Other Public Records

Archives, particularly church records, hospital records, and civil registers, can be major sources of data about births, deaths, marriages, and other family data. In most cases, however, such archival records of family data are inadequate by themselves for testing significant applied questions, even though they can be extremely important as supporting, contextual information. In some cases archival data may be useful for comparing and contrasting different communities that are targets in health and nutrition programs.

Records of people using health centers, lists of participants in nutrition programs, and a large variety of other secondary data sources can be useful in comprehensive study of impacts on families and households.

Given the ever-expanding scope of long-term and short-term migration, plus the complex problems of legal and illegal domiciles in barrios, favelas and other kinds of new settlements, it is obvious that in most areas the official census

records, church records, and other recorded data are seriously incomplete resources for assessing and evaluating the impact of health and nutrition programs.

7. Rating and Ranking Tasks of Households and Communities

In many instances it is very important to ascertain locally appropriate ranking (e.g. in prestige or political power) of families, social groups, occupations, or other categories. Highly useful and consistent results have been demonstrated by a number of researchers using quite direct and simple ranking techniques. Simon (1968) asked three of her most reliable local informants to (independently) rank order a large series of households in a community in terms of prestige or "categoria." Their rankings were similar enough to demonstrate that some sort of unspoken community-wide assessment of familial prestige was operating. This same method of ranking of families or households has been widely used--in Italy, India, and other places--to establish the locally relevant dimensions of social stratification and differential prestige (41, 42).

In many cases it is important to compare different communities in a health program in terms of their institutional complexity, "modernization," or other qualities. One way to establish a rank ordering among communities is through key informant interviewing in the range of selected communities. That is, two or three key informants in each community (or neighborhood of a city) can be asked questions about significant local facilities, ceremonial events, elected officials, and physical structures. Communities can then be rank-ordered in terms of the presence or absence of key characteristics. Poggie and Miller used this method to rank-order a series of towns and hamlets in rural Mexico in relation to a study of modernization (43).

8. Use of Existing Knowledge and Resources

In most situations involving health care delivery, resources exist that can be helpful in the assessment of the program. These resources can provide important data complimentary to information collected through quantitative and qualitative community studies. However, resources are not always available for a systematic analysis of program impact through community, household and family studies. Under such circumstances, using information available through other means is a good deal better than no assessment at all.

a. Other studies: Other research projects can be an important source of information, even when their primary focus is not on the most central variables most relevant to the health project. Fields which are likely to provide helpful information include epidemiology, anthropology, economics, psychology, and sociology. For example, in many cultures midwives not only attend deliveries, but provide prenatal care, post-partum care, and pediatric care as well. An anthropological study of midwives may include data about the impact of a health and nutrition program on the community, since some of the same variables are involved.

b. Community groups: It hardly needs to be said that programs need to work with community groups on all aspects of program impact. Most programs need to be planned and implemented with the knowledge and participation of relevant community groups (as discussed in other papers in this volume). To do otherwise can lead to disastrous opposition. (See Lewis 1955). While the data

obtained from these groups are important, the researcher or administrator must keep in mind the goals and concerns of each group in the sense that they will affect the groups' perceptions of the program's impact. Thus, a predominantly male group of community leaders that considers itself politically radical will differ in its assessment from a "club de madres."

c. Program Staff: Whether an evaluation is conducted by individuals responsible for the program or by outsiders, it is extremely important that the input of program staff at all levels be obtained wherever possible. In another paper in this series, Patrick Marnane discusses this in the light of the importance of program involvement for the staff (46). In addition, program staff often have an excellent sense of many things that evaluations tend to look at, particularly in the evaluation of program process. Discussion should not be confined to program staff at the top of the hierarchy, but should also include people in daily contact with program users. For example, community workers (promotoras) may be an excellent source of information. It is their job to know what is going on at the family level and other levels within the community, and if they are carrying it out well their insights can save a great deal of trouble. One obstacle to obtaining these insights may be the hierarchies which exist in any program. The community workers are often low in the hierarchy, and may be hesitant to communicate with their superiors. Another difficulty is in assessing the accuracy of their information (Are they covering up their own shortcomings?). Despite these problems, these individuals are an important resource for evaluation. With sensitivity and common sense, discussions with them can be helpful in planning intensive and extensive research, as well as in getting a sense of the program's impact. In more than one instance, a team of foreign evaluators has been called in to "solve" a problem which could have been equally or more clearly understood by talking with the program staff.

d. Data Analyses: Focusing on Intra-Group Diversity: In the matter of data analysis we would like to stress the importance of paying close attention to within-group differences for understanding the impact of a program. In experimental research comparisons are usually made between "control" and "experimental" groups, and in epidemiological studies, data is typically presented in terms of the mean or normative standards from which segments of the population are said to deviate. It is, of course, very valuable to be able to categorize populations with respect to particular parameters and to be able to specify whether an intervention had a "statistically significant effect." At the same time, however, analysis of the range of variation within the experimental and control groups can yield important insights about the processes through which the program is having an impact.

The work of Munoz de Chavez, et. al. (44) exemplifies the advantages of an intra-group focus in etiological studies. Their comparison of families with well nourished children and families with malnourished children in a small farming community led to the identification of a series of variables that appear to be implicated in the etiology of malnutrition in that area. A similar approach can be applied to studying the impact of a nutrition program. For example, in the matter of household composition and structure, it is very likely that some households will be strongly affected, others only moderately and still others will apparently be unaffected. In such a situation, it is useful to attempt to identify patterns of association that help to explain the differential impact. Is the degree of change related to differential program use?, to characteristics of households prior to intervention?, to geographical or ethnic factors?, and so on.

This type of analysis is especially useful when the evaluation procedure is in the form of on-going "process evaluation." In such a situation it can provide important feedback to the program, which can, in turn, guide future activities. However, if it is also valuable in post hoc evaluation for it can help to identify those segments of the population that are most likely to benefit from a particular type of intervention, as well as those who are most difficult to reach.

IV. SUGGESTIONS FOR OPERATIONALIZING THE MODEL

Many suggestions on data collection and references to good sources on research design have been made throughout this paper. A detailed variable by variable, question by question guideline would prove far too lengthy in this context. As has been discussed in the previous section, we feel that most variables will benefit from the multi-method approach. For example, the relative status of individuals in the household should be determined by asking one or more (preferably more than one, independently) household members, and by observing how individuals in the household actually behave towards one another, and how decisions appear to be made. Brief suggestions will be made below on data collection of the various categories of variables, and guides to research design.

Independent Variables

The paper by S. Scrimshaw entitled "Cultural and Other Practical Considerations in the Evaluation of Maternal and Child Health Services" (10) provides a more complete discussion of cultural factors in the delivery of services than can be presented here. Therefore, the reader is referred to that paper. Similarly, educational, economic and political factors are covered in other papers prepared for this conference (47, 48, 49).

For the purpose of the type of investigation proposed here, the data on migration should focus on what is happening (who migrates, do they send money back, do they return, is there visiting between country and city, how do urban in-migrants fare etc.) rather than on the dynamics of migration and the reasons for it except where changes in household composition and structure as a hypothesized outcome of nutrition and health programs are suspected to influence migration. This means that data collection on migration should probably be confined to relatively few interview questions.

The assessment of political and economic forces, on the other hand, should probably be done mostly through informal means such as conversations with individuals and groups, observations, and study of national and local political and economic situations.

Intervening Variables

Health behavior is best assessed through a combination of program records, observations of program use, observations of use of other health resources besides the program (other Western oriented programs or practitioners and indigenous practitioners such as lay midwives), interviews and conversations on health behavior ("When is a baby sick?" "What do you do when....?"), and observations of behavior (seeing a mother dilute milk to feed a baby). Clearly, the focus should be on behavior which is hypothesized to affect family composition and structure. Of course, this could mean all behavior affecting fertility, mortality and morbidity, which leaves the area for investigation fairly broad. This is where the qualitative data collection becomes useful, as the information gathered can provide a basis for focusing the study design.

Although this paper focuses on program effects on household composition and structure, the effects of household composition and structure on health behavior should not be

neglected by evaluators. In a common example, if one partner (for instance, the man) makes most of the health related decisions in the household and a program is aimed at women (as maternal and child health programs often are), the program may be underutilized. In another example, mothers who have relatives in the household (extended family) or nearby, may be more likely to use health services because they have someone to leave children with when they take one child for health care or go for care themselves. More than one health program has improved attendance by providing child care services at the health center in places where extended families are not common. In much of the discussion on household and family throughout this paper, it should be easy to hypothesize the effects of various types of households and families on health behavior and program use.

Data on mortality and fertility can be collected through vital registrations (usually of limited accuracy) and as part of a survey. Details will be presented when household composition is discussed. Data on morbidity may be available through the program, but should also be part of a survey. Where possible, repeat morbidity surveys (several visits to a household over a period of time) or morbidity surveys of the entire community or a very large portion of it are useful.

Dependent Variables

1. Household Composition

Data on household composition can be used to determine household and family size and structure. One of the most efficient ways to collect such data is to elicit information for a diagram of the household. In such a diagram, males are represented by a triangle, females by a circle. Generations are separated vertically. Each individual in the diagram is assigned a number and relevant information is recorded next to that number on a list below the diagram. We have found that the diagram often involves the person interviewed in a positive way, and is well accepted.

Data on fertility and mortality are most easily collected with some adaptation of the fertility history form proposed by Donald Bogue in the manual, A Model Interview for Fertility Research and Family Planning Evaluation (44). Other manuals in the same series provide techniques for the analysis of the fertility historty data and other related data. The series is available in Spanish as well as in English.

Sexual union (marriage, common-law marriage, visiting relationship) histories can be collected using a grid form similar to Bogue's fertility history form. In the past, it has been most common to only collect such histories for women. We suggest that careful thought be given to collecting them for men as well. For example, in cultures where men have more than one family either serially or simultaneously, a man may be supporting more than one household. Estimates of family income by the nutrition or health program (for purpose of fee setting, helping people plan how to spend income on food, etc.) will need to take into account how many families or at least children are being supported.

Obviously the data collected using grids for fertility histories or union histories must be supplemented by questions and observations which collect data on attitudes, and reasons for attitudes and behaviors.

2. Household Structure

The most frequent method for operationalizing the concept of family power structure is to ask a series of questions about hypothetical or actual behavior with respect to a series of typically-encountered family decisions. Questions can range

from the domain of mundane, day-to-day activities to significant life-altering decisions. Researchers often try to get responses, separately, from male and female household heads, and sometimes from children as well in order to assess the extent of agreement in individuals' perceptions of the decision-making process. Responses to the questions can be scored by combining them into a simple, arithmetic index, or particular items of greater significance from the perspective of the researcher may be weighted more heavily. Alternatively, two indices can be constructed, one which measures decision-making in day-to-day affairs and another that deals with more significant life events.

Some researchers have attempted to measure family power by means other than question-response in an interview. There is little doubt that behavioral observation is often highly productive of insights or more accurate information since it is less subject to the problems of distortion and misinformation that typically accompany an interviewer-respondent form of data-gathering. In order to gather data on family decision-making behaviorally, it is usually necessary to set up some type of standardized situation in which decision-making can be observed. By creating a standardized situation the problems of comparability of observation and scoring procedures are minimized and efficiency with respect to the amount of time required to obtain the data can be maximized. On the other hand, not all communities are readily amenable to this type of data gathering, which requires a particular kind of cooperation on the part of respondents. However, a "game" designed by Murray Strauss and associates to measure family power structure was apparently successfully "administered" in several different cultural contexts such as India and Sri Lanka, as well as the United States (33).

Measures similar to those discussed for power structure can be applied to the other variables related to household structure.

V. CONCLUSIONS

While it is difficult to be certain of precise causality in the assessment of program impact, the evaluation of nutrition and health programs is extremely important in order to assess and improve the running of the program (process), and to get a sense of both specific and broad program effects. Without this, a program runs the risk of completely missing the means of achieving its goals. In the case of broader impact, the achievement of short and long run assessment, the basic groupings of human families in households and the dynamics of these groups are a necessary consideration.

This paper has attempted to provide a basis for the understanding and studying of the impact of nutrition and nutrition-related health programs on family and household size and structure. The relevance of such an approach was discussed, and a model of the important variables related to health programs and social structures and their possible interactions was presented. Throughout the paper, examples of important linkages were provided as were suggestions for data collection. Sections focusing on data collected touched on important methodological issues and considerations, and presented some suggestions for the collection of information related to specific variables. Because of the complex nature of research design, the methodological sections provide only a beginning of research tools, along with leads to appropriate sources containing more detail.

This paper, then, should be seen as a springboard for the conceptualization and design of projects to assess the impact of nutrition and health programs on family size and structure which will provide helpful information as to the role of such projects in positive changes in individuals, households, and communities.

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RURAL HEALTH REORGANIZATION IN TANZANIA: THE IMPLICATIONS OF CHANGE IMPLEMENTATION

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All societies respond to both internal and external pressures by a combination of gradual change and reaffirmation of traditional beliefs. More rapid societal change, as desired by some national leaders is often accomplished only through more disruptive and revolutionary processes. Even when a country's political leaders have boldly endorsed new ideas and structures, the internal implementation phase remains difficult. It is this aspect of local change implementation within a developing health care system that will be reviewed here.

The Tanzanian Situation

During the last decade, mainly as a result of the Arusha Declaration of 1967, Tanzania has pledged itself to rapid development of its large rural areas. This is in keeping with its national policy of socialism in which the government is attempting to spread the activities and benefits of development throughout its entire 16,000,000 population. Ninety-three percent of this population is in the rural areas and still depends primarily on subsistence agriculture. One of the major steps in the rural development has been to bring scattered families together into co-operative villages where there can be reached with social services and can take part in community projects. More than 40% of the rural population now live in these ujamaa or "development villages."

All of these events carried significant implications for Tanzania's health care system. The already established pyramid of health auxiliaries needed to be rapidly expanded. The rural health units themselves needed to be increased in both quantity and quality. Both of these activities are already well under way as reported by Chagula and Tarimo (1974). By the end of 1975 there were nearly 1,800 dispensaries and 160 health centers in the country. These were distributed so that 90% of the population lived within 10 km of some health facility, although coverage is considerably worse in some districts.

A key developmental issue was the kind of programs that should now be provided through these increased static units and/or the associated mobile teams to improve the level of health care. The existing pattern was of primary curative services being provided at the dispensaries and health centers and preventive programs operating mainly as mobile teams from a district and regional hospital base. Many of the preventive activities were organized as single, disease-oriented programs and a wide proliferation of auxiliaries had been trained for them. These included such cadres as the TB/Leprosy Home Visitor, the Malaria Orderlies and Assistants, Sleeping Sickness Orderlies/Auxiliaries, etc. Other categories such as the Health Nurse, and later the Nutrition Instructors provided antenatal, nutrition, and eventually immunization services.

In 1973 the Ministry of Health was reorganized into three divisions - Manpower Development, Hospital Services, and Preventive Services. This made it possible to fulfill a long-felt need noted by Timuss (1964) and others for greater emphasis on preventive activities. But as existing programs were reviewed it became obvious that sufficient expansion of single-purpose cadres to provide nationwide coverage was unrealistic. Consequently, the emphasis was shifted to multi-purpose auxiliaries who would receive adequate basic training so they could cover a number of different primary care activities. These would be trained in sufficient numbers to allow them to be based at the dispensaries and health centers.

The three basic cadres which are now being trained for the dispensary-based team are the Rural Medical Aid (RMA), the Maternal and Child Health Aid (MCHA), and the Health Auxiliary (HA). Students to be trained in each of these cadres are selected from primary school levels, with a reference given to those who have had some experience in the health field. This basic dispensary team, along with one or two supporting staff, provides primary health care for an average of 7,000-10,000 people.

The next level of health care above the dispensary is the health center. This is a larger facility under the direction of a Medical Assistant, who is a secondary school levels with three years of medical training. He is assisted by one or two RMAs, several trained nurse/midwives, several MCH Aids and other supporting staff. A health center has 20-40 beds for maternity cases, emergencies, and observations, a total work force of around 20-30 staff, and covers between 60,000 and 100,000 population. In principle it is the first line of referral from the dispensary, and the Medical Assistant in charge is to provide supervision to those dispensaries in his catchment area.

Standardized curricula and training programs, as well as a complete scheme of service and upgrading pathways, have been established for each type of auxiliary. A number of new training centers are being built with bilateral assistance to make it possible to meet the manpower projection goals for 1980. The following table shows the manpower figures and training center expansion.

Rural Health Manpower Production in Tanzania

	1973 Training centers	Output per year	1976 Training centers	Output per year	1980 Training centers	Output per year
Health Auxiliaries	1	30	1	44	6	380
MCH Aids/Village Midwives*	5	60	18	165	18	450
Rural Medical Aids	5	43	13	259	16	480
Medical Assistants	3	72	6	171	8	217

* The older category of Village Midwives has been replaced by MCH Aids, who are being trained in 18 new training centers.

Proposed MCH Services

As the complete health team became increasingly available in the rural areas it was possible and necessary to develop a new pattern of health care. This was particularly important for preventive activities, including maternal and child health services, for several reasons. First, the old pattern of intermitten visits by mobile teams to the rural areas resulted in rather poor coverage even where it was consistently maintained. This is partly because of the usual hesitation to readily accept newer services and also because it required special visits on particular days. Even those living near to established health facilities had to return on several different and specific days for the different services, such as under-five clinic, antenatal clinic, and family planning clinic. The motivation that brings a sick child to a clinic for treatment was often not sufficient to bring a well child on another day for immunizations. And the newer and less understood services, like family planning, suffered even more. This problem occurred even in towns where distance was not a problem and the different clinics were operating several times each week. The attendances for curative services continued to climb, however, often exhausting both staff and space. The disparity in coverage between it and preventive services could be shown by random surveys of mothers and children waiting in out-patient queues. Usually 50%, and sometimes more, of these "sick" children had never attended an under-five clinic for immunizations or other preventive services even when it was being provided on the same day and in the same building. As is often the case, this sub-population was from the lower socio-economic levels and would have benefited from the preventive services even more than the others.

Another major problem that threatened the old mobile clinic system was the world-wide oil crisis. The tremendous effects of these price increases on developing countries has been well-documented. In Tanzania it meant that most of the district mobile teams exhausted their travel budgets within the first few months of the financial year and were idle after that. Even the usual problems of maintaining vehicles in adequate repair became increasingly difficult on tightening budgets.

It was in this context of severely limited budgets for the mobile teams but increased numbers of rural health units and staff that the current system was developed. It was decided the primary preventive services should be provided as much as possible through the Rural Health Centers and Rural Dispensaries. This would be done largely by the use of MCH clinics to be run by MCH Aids and other auxiliary cadres. Each MCH clinic would offer comprehensive MCH services, including antenatal and postnatal care, immunizations, family planning, nutrition evaluation and advice, general health education, malaria chemo-suppression, and simple treatment of disease. More serious illnesses would be referred to the out-patient clinic to be seen by the RMA or Medical Assistant.

The other major decision was to try and increase the coverage of these clinics by making them more easily available to all mothers and children. It was felt to be particularly important to avoid the frequent occurrence of a child receiving treatment in an out-patient clinic, but then his mother being told to return on a "clinic" day for immunizations, antenatal care, or other MCH services. Obviously an excellent opportunity to increase MCH coverage without transport or additional expense was being lost. To really capitalize on this, or in effect to exploit the drawing power of the most popular service - curative treatment - it was necessary to provide MCH services every day. This was to be initiated with the requirement that all mothers and children coming to the health unit for whatever reason must first pass through MCH clinic before they can be seen by the medical assistant or receive medicine. This mix of all mothers and children, sick and well, is individually weighed, evaluated, immunized, treated, etc. Only the more seriously ill ones are referred over to the front of the out-patient queue. There are obviously some exceptions to this general rule, such as the very sick

child or one who is returning each day for treatment with dressings, but in general the rule would hold.

Implementation Plan and Experience

To indicate that there was complete unanimity on the MCH plan, or a clear mandate for its adoption, would not be true. In this case as in most, the plan continued to evolve and support for it was generated during the implementation phase. The various factors that were significant in its adoption, and their relative importance, will be discussed.

Pilot Program

With the significant changes envisioned, it seemed imperative to have a field laboratory to refine and modify some of the plan's components. Data from such a "model" program would also be useful to consolidate political support for the plan until the national program was well under way. Indeed, the pilot program as detailed below, became an effective tool in both the conceptual development and implementation phase.

Three representative districts were selected from among the 70 in the country. Outside assistance (UNICEF) was obtained to purchase the required equipment, including a kerosene refrigerator and vaccination supplies, for each dispensary and health center in the three districts. It was originally planned to supplement the health manpower in these districts up to the proposed 1980 levels, but this became politically unwise. Initially, a baseline survey was used to establish the level of MCH service utilization, general health knowledge of the mothers, and clinical status of the children. A series of seminars on clinic organization, equipment use and maintenance, and selected clinical techniques was conducted to prepare the local health staff. Actual implementation of the plan spread gradually through the three districts, its rapidity influenced primarily by supervisional support and local initiative.

These "Model Districts" proved invaluable to the national program by pointing out some of the obstacles to successful adoption. Perhaps the biggest hurdle, which soon became evident, was the unspoken skepticism of the local clinic staff. Everyone was in favor of receiving new equipment and learning new skills, but there were considerable resistance to attempts at clinic reorganization. This is understandable when one realizes that the existing pattern of services had developed over a considerable period of time and was a comfortable "known." In addition, anyone who had been in the system very long had seen many enthusiastic projects espoused by national directives, an idealistic new district medical officer, or local politicians. But most of these new programs remained at the planning stage only. Occasionally a new Land Rover actually arrived in the district, intended for some particular purpose, but was soon lost in the hospital's vehicle pool.

In particular, the idea of a daily combined MCH clinic met with the most resistance from the local staff. They were often overworked in their weekly antenatal or children's clinic and saw a combination of these two on one day as impossible. The answer, of course, is that the MCH clinics were to be every day so the work load was spread evenly throughout the week. This would result in a more efficient use of both staff and facilities than the old pattern of overload one day and light work the next.

By encountering this unexpected staff resistance in the Model Districts, appropriate solutions could be developed. One of the most important factors in convincing the staff

that this new plan was for real and not another empty dream was the actual disbursement of equipment to the health units. In fact, the conditional offer of new equipment was frequently used to persuade hesitant staff to change to the new organizational plan.

Once some clinics had successfully begun the new program, their experience became valuable examples for the others within the district. This was especially true when the national program was being launched and the successful experience of the Model Districts became widely known. Seminars held in conjunction with clinics already following the new plan provided firsthand experience for new staff orientation.

As already alluded to, there were many other useful functions of the Model Districts. Such items as field testing of the new clinic cards and reporting system were done done here. The development of an adequate "cold chain" system for vaccine distribution, along with trials of the kerosene refrigerators and other equipment, was also done. And finally, but not least in importance, these three districts provided "show pieces" for funding agencies and politicians to visit and observe.

Seminars

Considerable reference has already been made to the role of seminars in promoting the new program. Not insignificant budgetary amounts were spent on these. Besides being a popular event for rural staff, they provided an opportunity for discussion and training. Equipment maintenance, proper record keeping, clinic flow patterns and vaccination and other clinical techniques were among the topics covered.

Two general types of seminars were conducted. Initially it was felt imperative to secure the physicians' support for the new plan. Three two-day seminars were held in different parts of the country for government and voluntary agency physicians. In this setting, important objections could be met and protocols established.

Each District Medical Officer was then promised funds and central assistance to conduct his own district level seminar for his health staff. They were encouraged to have all health personnel within the district attend these seminars so important questions about supervision and allocation of responsibility could be settled. This was especially important with regard to the control of vaccine supplies which was frequently considered a prestigious position. By having the various types of auxiliaries present at one seminar, their respective roles in the MCH program and other facets of health care could be openly discussed and reinforced.

The final important point about seminars was to recognize their continuing importance after the program had started. There were enough new ideas presented that few staff were capable of comprehending everything at the first exposure. New graduates were also frequently being added and modifications were continuing to be made in various components of the system. Certainly the very definition of an auxiliary implies the need for continuing education.

Manpower Training Programs

An integral part of the national MCH plan was the preparation of a new cadre called the MCH Aide. Their one year didactic and six month field training concentrated entirely on the knowledge and skills they would need to provide the envisioned MCH services. Applicants were primarily selected from the rural areas of the districts to which they would be assigned after graduation. Those with some previous work experience in the health care system were given preference. All efforts were made to keep the training facilities and curriculum very practical.

A more difficult goal to achieve was the integration of the appropriate curriculum changes and additions into the other medical training programs. Obviously all students from the medical school to the rural medical aides needed to be acquainted with the various aspects of the MCH program and particularly their role in it. It was even argued that the primary effort at changing the system should be done through the school. Students could be provided with the appropriate knowledge and skills in greater depth than in brief field seminars. Each new group of graduates could then spread the new plan to their respective posting sites. It turned out that this was not an effective change agent because the new graduates had no status or power to influence the system until they had at least 2-3 years of work experience. By that time they had usually become familiar with the existing pattern of health care and were as reluctant as the others to change.

Records and Reporting System

The rural health worker is at the base of a giant health pyramid. He is expected to provide both the basic health services and a report that he has done so. When new programs are begun, it is often felt imperative to add a new set of reports to document its development and to allow evaluation. The eventual result is that the rural health auxiliaries, who are often overworked anyway, are called upon to fill out an amazing array of reports that are frequently overlapping and confusing. The most tragic part of their effort is that the results are seldom tabulated and used in any meaningful way to improve the system.

Because the proposed MCH system involved the integration of most clinical and preventive activities it was decided a simple combined reporting system was desirable. Two new home-based clinic cards were first developed, one for children and the other for pregnant mothers. A similar card for mothers following a family planning program has subsequently been added. Then a clinic-based reporting form, using the five nought tally system (00000), was developed. This was by no means comprehensive, but requested only the specific information which was felt to be necessary at the district and national level. Further details, especially diagnostic and treatment information, remained on the clinic cards only. The report form was designed so the information requested was directly available from the clinic cards and could be filled out quickly. The initial compilation and analysis of the data was done at the district level and then summaries forwarded to the ministry. Attempts were made to base the distribution of supplies on the reports received, but the turn around time was too long to make this effective. In summary, records and reports must serve the system and not dominate it.

Equipment and Supplies

As already mentioned, the distribution of new equipment to the rural health units was one of the important factors in convincing the staff that a real organizational change was occurring. This confirms the difficulty most programs have in getting equipment out to the rural areas. An even bigger problem, yet to be solved satisfactorily in Tanzania, is the regular distribution of consummable supplies. Stable items like clinic cards and medicines are difficult enough, but to maintain a "cold chain" for vaccine distribution requires considerably more expense, manpower, and motivation.

Maintenance of equipment, in particular the kerosene refrigerators, was another major concern. The appropriate knowledge and techniques were included in each of the seminars. Each health unit was also requested to identify one person who would take primary responsibility for adjustments and maintenance. Selected spare parts were

provided with each piece of equipment and a reserve supply was kept at the district hospital.

Probably no other factor was found which discouraged the health staff more than to actively promote a new program to the people and then not have the necessary supplies to meet the demand. Until adequate funding and commitment are available to provide this kind of support, it is unrealistic to expect local staff to vigorously attempt to expand their coverage.

Legislation

Primary education is becoming increasingly available in developing countries. Tanzania is planning for Universal Primary Education (UPE) before 1980. This anticipated service for all children raises another possibility for the promotion of immunizations and other MCH services. Legislation is informally being considered that would require each child to present a completed vaccination card before he could enter school. When the health care system is adequate to provide this quantity of service, such legislation may be utilized.

Conclusions

The successful development of a rural health program hinges on many variables. Each country should carefully consider these, along with their budgetary and manpower implications, during the planning stage. An adequate assessment and feasible solutions can ease the difficult implementation phase.

THE COMMUNITY HEALTH WORKER: GUIDELINES FOR TRAINING THE COMMUNITY TO POWER THE PROGRAM

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A. Introduction

The health services of developing countries have been patterned after those of the industrialized countries of the Western world. This is so, despite the ecological dissimilarities between the two areas. As would be expected, health services have therefore failed to satisfy the needs of these developing countries. The following key factors have to be seriously considered if the situation of health services in developing countries is to be remedied.

- Lack of Population Awareness of Health Needs and Services
- Heavy Reliance on Hospital-Based Health Services
- Difficulty in Accessibility to Health Services
- Class and Cultural Barriers on Health Services between Providers and Consumers
- Little Emphasis on Children - although they comprise 40-55 percent of the population
- Lack of Preventive Health Services - although the vast majority of the health conditions are largely preventable
- Lack of Infrastructure of Health Services Delivery - due to limited budget, personnel and workable system

It can thus be seen that in the foreseeable future, from a numerical and geographical point of view, the necessary outreach to make contact with the majority of rural population cannot be achieved through this orthodox approach to health services. No wonder then that it has been estimated that less than 10% of the population of the developing countries have access to organized health services of any kind.

From the foregoing, it is clear that alternative approaches to health services in developing countries are necessary. Fragmentation of services increases costs and destroys efficiency. Approaches aimed at integration of services are therefore indicated. Services must be comprehensive in scope and focus on priority "at risk" categories. Integration and coordination must occur at various levels of the health services.

B. Integration of Health Services into Community Development

It is of the utmost importance that programs be planned and undertaken in partnership with the community, based on their expressed needs and with their fullest possible involvement and participation. Ideally, health action should be community directed and involve the community as a whole through its leaders, formal and informal, and its various natural groups. It should be noted that community directed action is not merely action directed at the community by professional health workers, but seeks to promote health action by

groups within the community, led by the community's own natural leaders. Such leaders might be the chiefs, school teachers, priests, or other acknowledged persons who command the respect of the community. In some areas, an active organization directed to community development will be present. This is a form of social activity in which members of the village community meet to discuss their individual and joint needs. They establish priorities, make plans to the best of their ability and resources, seek help from outside, and proceed to undertake a variety of different projects. These may include such things as building a well, a market or a clinic, construction of roads, bridges, schools and churches. This type of self-development at the village level is of the greatest importance, and health activities should be integrated into them as a means of spreading health knowledge and providing better health facilities.

Agriculture is the mainstay of the economy of most developing countries. Agrarian reforms and changes in land tenure practices have led to the formation of farming co-operatives. These co-operatives not only improve the efficiency and increase per capita production but also given the farmers a collective-bargaining capability. They have been very effective instruments in strengthening community organizations to undertake self-help community development projects. In fact, in some cultures where community organizations had not traditionally existed, these agricultural co-operatives have been very useful in acting as the nucleus and encouraging their formation. Health services, as indicated above, should be integrated with these other social and economic community development projects.

Furthermore, nutrition and health are inseparably related. One of the main factors affecting nutritional status of a community is food availability, which, in turn, is related to food production. As part of the dissemination of sound health and nutrition education, people should be informed as to the best food crops to grow. On a modest scale, they should be encouraged to cultivate these in a low-cost, low-effort home gardens. On a larger scale, the difficult problems of the understandable competition between cash and food crops should be tackled at a national level. A judicious balance between the two should be aimed at.

In many developing countries, most, and at times the only available health services in parts of the remote areas are often relatively well-equipped, staffed and managed by highly motivated individuals, who, as a result of their religious connections, have the confidence and trust of their clients. Hitherto, these health services have been mostly hospital-based and centered, so that there is the need to modify and broaden their activities. Even in places where the voluntary agencies do not have any organized health service, the clergy and the priests could play a vital role as change agents in any health program instituted.

Apart from religious organizations, there usually are other voluntary agencies that are either involved or could be involved in health services. Examples of these are the Red Cross Society, CARE, Women's Guild and other organizations.

The activities of all these organizations, religious and secular, should be co-ordinated, and their energy channelled into health services with a definite sense of direction. Their assistance could be in the delivery of services or in public relations or as change agents in health education activities. The need for liaison and co-ordination of the activities of these agencies with governmental health services, without diluting their quality of service, is obvious.

C. Community Organization and Leadership

At the outset, effort should be made to determine the structure of the community organization, the types and strengths of leaderhip in the community. It is important to involve the community organization and leadership in the planning process right from the beginning. They will be invaluable in supplying necessary information and generally facilitating the planning process. Furthermore, only by so doing can they identify with the project and regard it as their own rather than something that was imposed from outside. In some parts of the world, for example, parts of East Africa and the Sierras of the Andean countries of South America, the population live in isolated households, surrounded by their farmlands and lack the cohesive force of a community identity. In such cases it would be essential to encourage community spirit and the formation of a community organization with an effective leadership.

D. Community Attitudes to Health, Expectations and Receptiveness

A knowledge of this is necessary in order to enlist the fullest cooperation and collaboration of the community in the health program. It is important in the health program planning in order to insure that health needs as well as other needs are provided for. I recall a meeting we once had with a community group in rural Ecuador. When we asked them what their major health needs were, they replied "saranpion, agua potable y rattus," which translates into "measles, potable drinking water and rats."

E. Selection and Training of Community-Based Health Workers

Various types of personnel are currently in use in developing countries, depending on the countries' historical past, stage of development, resources, and type of health facilities. In institutions like hospitals and health centers, health service could be more integrated and comprehensive if the team concept is practiced. It would also improve efficiency and utilization if arrangements could be made for both mother and child to be seen in the same location and on the same day if both of them require attention.

In most rural communities there are no health facilities and even in some of the places where they exist, under-utilization is a problem One must therefore move away from the fallacy that all you have to do is to build a health facility and people will automatically use it. Instead, a better idea is to take health services to the people in the communities and their homes. For this purpose, a trained, multi-purpose community health worker would be an efficient and effective agent in delivering integrated health services. Specifications for such a community-based health worker would vary from country to country depending on the circumstances. For example, the basic educational requirements for such a candidate for training would obviously depend on what is locally available. The information gathered during the planning process would be invaluable in making decisions about various aspects of the community-based health worker.

The health workers will have to be trained for expected function and need. The following steps have to be taken in setting up the training program.

1. Definition of Need

The planning process would furnish the opportunity for determining the health needs, both felt and observed in the community. It would also provide the basis for the priority rating of the health needs. Thus a realistic plan to meet the health needs of the community would be prepared.

2. Functional and Task Analysis

The next step is to determine what functions are to be undertaken in order to satisfy the health needs already identified. As a result of this it would be possible to determine what tasks need to be performed in order to fulfill those functions.

3. Job Description

Based on the tasks listed a job description could then be prepared.

4. Curriculum Design

The training curriculum will be derived from the job description and by so doing will ensure that training is related to function and need.

5. Training Manual

A training manual is essential specifying not only what is to be taught, also where, how and by whom. This would ensure uniformity and standardization in the training.

6. Training of Trainers

A decision will be made as to who will train the community health workers, depending on what is locally available and feasible. Regardless of who the trainers are, it would be necessary to give them a short course of training in order to ensure that they fully understand the aims and procedures of the training. They would also be instructed in the use of training materials and teaching methods.

7. Selection of Community Health Workers for Training

The community health workers have to be selected from the community by the community, as they are more likely to be accepted and respected in the community. However, the community organization would need some guidance and criteria for the selection. For example, minimum education and background should be set, consistent with the local realities of the situation. Again, if it is the wish of the community the local traditional healters may be selected for training.

8. Location of Training

The training facilities should be as near as possible to the program area, not only to make the training more ecologically relevant, but also minimize the temptation for trainees not to return to rural areas after they have been exposed to the glitter of life in the city during their training. This should ideally be in the nearest health center or health subcenter. The candidates selected for training from the surrounding community would be gathered here for training. The size of the training class would vary from five to 15, depending on the training facilities. There would of course be some basic theoretical aspects of the training should be practical and on the job (in-service). The trainees should have practical experience of working everywhere, including home visits.

9. Community Health Posts

Each community organization as part of the commitment to the health program should be able to provide an operational base for the community health workers. This base designated as a community health post could be an existing building or by community effort could be constructed cheaply with local building materials. The basic equipment, medicines, and supplies should be modest and not expensive and assistance provided this could come from the government. Community health workers, although they operate from this base, should spend most of their time out in the community, involved in educational efforts through women's social clubs, or by visits to the homes.

10. Procedure Manual

Based on the training curriculum and the training manual, detailed instructions should be laid down for the community health workers. Nothing should be left to the imagination and all the possible options should be anticipated and alternative courses of action set down in detail. Most importantly, the manual should stress their limitations and instruct the health worker when to seek for assistance or when to refer a patient to a more skilled personnel.

F. Functions of the Community Health Worker

The community health worker at the health post and through home visits and mother's clubs will deliver the following services.

1. Basic Health Services

(a) Counseling on child health and child rearing.

(b) Minor curative and first aid emergency services.

(c) Immunizations.

(d) Pre-natal and post-natal services.

(e) Midwifery services for uncomplicated cases.

(f) General health education.

(g) Registration of births and deaths.

(h) Referral to the health subcenters.

2. Nutrition Services

(a) Nutrition counseling and education.

(b) Curative services for patients with malnutrition.

(c) Monitoring of the nutritional status of the at-risk groups through weight charts.

(d) Promotion of breastfeeding.

(e) Counseling on infant weaning using low-cost, locally available high protein vegetable multimixes.

(f) Influence in the agriculture practices of the community through demonstration low-cost home gardens.

3. Family Planning Services

(a) Family planning information and motivation.

(b) Dispensing under supervision desired contraceptive methods possible in the home or health posts.

(c) Referral to the health subcenter for the more complicated procedures.

(d) Follow-up of acceptors.

(e) Continuing review of the non-acceptors.

4. Environmental Health Services

(a) Environmental sanitation information.

(b) Personal hygiene information.

(c) Advice and assistance with latrine construction.

(d) Methods for rendering drinking safe water.

G. Supervision and Motivation of the Community Health Workers

It is true to say that a program of this nature utilizing low level auxiliaries is only as good as the quality of the training and the closeness and the effectiveness of supervision of their activities. Therefore, a system of close and effective supervision should be devised and they should be in close touch with the nearest health subcenter or dispensary. They should be accountable to the local health subcenter who should provide support and referral services. Their activities should be supervised out of the health subcenter. There should be a system of refersher courses at regular intervals in the health subcenter. In order to achieve this, it may be necessary to reorganize and retrain the staff at the health subcenter so that they will be in tune with the whole program. It is essential to offer some motivation to the community health workers to make it worthwhile their remaining in their posts. Although in some circumstances it may be possible to have their services on a voluntary basis free of charge, the only motivation being their status in the community, it will often be necessary to provide them with some remuneration to meet their families commitments. This may take the form of a modest honorarium provided either through community effort or by the government, or the two in partnership. Whatever the arrangement, it is crucial that this category of health worker be recognized and integrated into the health services of the government.

H. Evaluation

Evaluation may be defined as the process by which information relevant to decision-making can be obtained from a project, analyzed and interpreted. The purpose of evaluation is to provide decision makers with useful information about how programs are functioning with respect to achieving their goals.

Evaluation should be built into all health programs. It should be a continuing and dynamic approach that permits examination of accomplishments or lack of it at any time. If a program has not progressed as planned, a proper evaluation can reveal the cause and make recommendations aimed at removal of such causes.

I. Conclusions

The foregoing has been a sketch of the guidelines for identifying community organizations, ensuring their participation in planning and executing health programs, the selection, training, supervision and motivation of the community health worker. It is my belief that, if these steps are adhered to, the community will be able to power their basic health programs at the community level, with a minimum of outside support.

CRITICAL ENVIRONMENTAL AND ECONOMIC INTERDEPENDENCIES: THE SEARCH FOR SOCIETAL VALUES

Climis A. Davos, Ph.D.

INTRODUCTION

Economic development is pursued by every society as an end whose level of achievement will determine the attainment level of all the rest of its goals. With respect to the health goal, economic development promises the elimination of the health problems of poverty. Moreover, it promises an ability to finance an expanding health care system and to develop an effective preventive health program. In this respect, the integration of health into planning for development may appear to be a straightforward task of assessing health needs, defining them as goals, evaluating their benefit-cost efficiency, and designing administration plans and implementation strategies.

However, economic development also contributes to the realization of a great number of new and critical social problems. The majority of these problems relate to health and are associated with the steady deterioration of environmental quality and depletion of natural resources. The historical evolution of the concept of health is only one indicator of the recognition of these problems and their health ramifications. Health no longer implies the absence of bodily afflictions as it did during the earlier years of the industrial revolution. As long ago as 1946 the World Health Organization defined health as being "a state of complete physical, mental and social well being and not merely the absence of disease."

Further manifestations of the awareness of the "new" problems that accompany economic development are provided by the expanding demands for environmental impact assessments and by the debate on energy alternatives.

The problems of economic development become more difficult to confront because it must be done with conflicting scientific inputs and under a regime of competing societal values. Both these realities manifest themselves with development. They have necessitated, in the past, tradeoffs among goals and among alternative development strategies that did not always adequately account for their health-related compromises.

I argue, therefore, that integration of health into planning for development must not be attempted only along the traditional lines of assessing health needs, expressing them as goals, evaluating their benefit-cost efficiency, and designing administration plans and implementation strategies. Strong emphasis must be placed on three other areas of research.

The subject of the first research area must be the interdependencies among all the goals of a development plan that may collectively be referred to as environmental and economic interdependencies. These must be identified, modeled and closely monitored. The second research area must focus on the derivation of the shadow prices of the above interdependencies expressed in terms of the latter's health impacts. Instrumental for the derivation of these shadow prices will be the harmonization, to the extent feasible, of conflicting scientific inputs and competing societal values. Finally, the objective of the third research area must be the utilization of the health shadow prices in order to establish boundaries beyond which health concerns and impacts should not be traded in favor of the advancement of other societal goals. I have devoted the rest of this paper to an elaboration of these research areas as well as of my thesis and arguments regarding the integration of health into planning for development.

Critical Environmental and Economic Interdependencies

One, if not the most, significant ramification of development is a steadily deteriorating environmental quality. The comprehension of the importance of its health and other social implications can be singled out as the most pressing reason for the broadening of the health concept by the World Health Organization. It can also be considered as the most serious challenge to the development goal.

A full understanding of the environmental and economic interdependencies connecting all the goals of a development plan becomes imperative, therefore, for both the achievement of health goals through development and for the achievement of development without unacceptable health costs.

As a case in point, consider the industrialization strategy which is one of the cornerstones of development planning. It can be formulated by choosing among alternative industrialization patterns promising differing rates of growth, differing magnitudes of production and value added, for differing time horizons. More often than not, the criteria of choice are only these abstract econometric indicators of rates of growth and of gross national product; provided, of course, that the necessary primary production factors and resources are available.

However, alternative industrialization patterns also contribute to differing income distributions and acquirements of skills and education among individual members and segments of society as well as among regions and urban settlements. Moreover, they contribute differently to such environmental problems as air pollution, water contamination, noise levels, soild waste loads and safety hazrds. Indirectly, alternative industrialization patterns contribute differently to such problems as: (1) the introduction into the environment of chemicals such as DDT, vinyl chlorides, polychlorinated biphenols; (2) the use of polluting and health endangering energy resources; and (3) urbanization patterns with impacts in terms of congestion, sanitation needs, noise, crime, loss of cultural ties, loss of social orientation, and disassociation from community values.

It follows, therefore, that the problem of choosing an industrialization plan cannot be divorced from the problems of choice among alternative health goals, their counterpart environmental goals, and goals relating to income distribution, energy, education, urban development, crime and any other social concern. Not only will decisions on industrialization plans interfere with the achievement of all other goals, but decisions on these other goals may upset the plans for development through industrialization.

Similar associations among all the goals of a plan can be established when the available options for action aiming at their achievement are considered. Environmental and health goals, for example, will have an impact on the consumption patterns and the development of particular industries. Thus, they can indirectly be regarded as a source of impacts similar to those I associated with industrialization patterns.

Understanding of these associations among all the goals of a plan for development justifies my previous assertion. As I stated it, such an understanding and monitoring of all the environmental and economic interdependencies among the goals of *a* plan for development must be the first step for a true integration of and orderly progress towards all society's goals.

The Search for Societal Values

The next step of goal integration must be the evaluation of the environmental and economic interdependencies among the goals of a development plan in terms of shadow prices. The latter express the value for society of the progression towards or retrogression from its goals that may be caused by an action aimed at the achievement of a particular goal. The shadow price of an industrialization plan will reflect, thus, the value that society attaches to all health, environmental, economic and all other social implications of the plan. Similarly, the shadow price of health goals will reflect the value for society of the progression towards or retrogression from the rest of society's goals necessitated by the implementation actions required for the achievement of the health goals.

Utilization of shadow prices enables what I have called evaluation within a social context because they reflect the values of a society perceived as an organic chooser of ends (1, 2). The fact should not be overlooked, however, that different segments of society society prefer different achievement levels for society's goals. As a result, various estimates of shadow prices for the same can be derived unless a unanimous agreement on target levels of goals achievement can be reached.

It is an undeniable reality that such an agreement is almost impossible even for such goals as those relating to health. Two reasons for this impossibility I consider as most significant. First, income inequality leads all individuals to have differing dreams, goals and priorities. Moreover, income inequality generates alternative information needs among the various publics. It also affects the capacity of the societal units to assimilate information on goal impacts and evaluate it according to their priorities.

The value and information problems that the inquality of income presents are further exacerbated by the fact that the pursuit of goals has an impact on income. Thus, a dynamic analysis of community values and their entropic changes is also required. Moreover, the pursuit of goals will have synergetic impacts on each individual's share of rewards and sacrifices. Thus, each individual is asked to evaluate the various proposed goal achievement levels with an understanding of his/her net share of rewards and sacrifices that is difficult to derive, nay, to comprehend.

The second important constraint to reaching an agreement among all societal units on target goals achievement levels is a scientific input containing fundamental contradictions. Any effort to confront the problems of competing societal values will be severely undermined by this reality. Estimates of goal impacts both on an individual and on a societal basis will have limited value standing alone as evaluation factors as long as there are scientists arguing opposing views, theories, and findings. This reality has manifested itself in the debate on the health effects of such social actions as smoking, use of nuclear technologies, and more recently the use of saccharine.

The argument may be advanced that in undeveloped countries there can often be found a small and homogeneous scientific, economic and political elite which can generate unanimous support for goals and policies. It must not be forgotten, however, that if indeed development is sought for all segments of society this argument dangerously underestimates the importance of societal value dynamics.

The foregoing brief discussion of the difficulties of arriving at an agreement on target levels of goals achievement and thus at a single set of shadow prices for all goals justifies the other requirement that I suggested for a true integration of all development goals. As I argued in my introduction, the shadow prices of the health and the rest of the goals must be derived after an attempt to harmonize conflicting scientific evidence

and competing societal values. For this task, a participatory evaluation approach is required.

The opportunity must be given by the participatory evaluation approach to all the various publics, special interests and decision-making agencies, first, to express their goal preferences and, secondly, to reveal the value tradeoffs they are willing to make for the purpose of maximizing the support for a particular plan. A scanning of these value tradeoffs and preferences will lead, then, to an understanding of: (1) the coalitions of support for each particular goal; (2) the consistency of preferences and values of the various coalitions; (3) the information needs of the coalitions and their capacity to evaluate information; (4) the grounds of agreement and disagreement among the coalitions; and (5) the changes to maximize the level of accord among the coalitions (3, 4).

On the basis of the above information, shadow prices of goals can be derived that will reflect the values of a society not in a stage of total harmony among its members but in a stage of minimum discord. Total harmony guarantees the achievement of goals while minimum discord promises at least an orderly progress.

Health Tradeoff Boundaries

In addition to deriving shadow prices for a society in a stage of minimum feasible discord, a participatory evaluation approach designed to generate the previously described information input serves another purpose of extreme importance. It enables the establishment of boundaries beyond which tradeoffs between health and any other goal are unacceptable. I emphasized the need for establishing such boundaries in my introduction as the third step for a true integration of health into planning for development.

Even in developed societies, we witness a tendency to regress from absolutely inflexible health protection legislation measures to dangerously flexible ones. In the U.S., legislation such as the Delaney clause indicates that absolute protection of health is the ultimate priority. At the same time, however, the retreat to risk-benefit analysis for other important choices, such as the utilization of nuclear technology, implies that health concerns may be weighted against other criteria such as economics.

Undoubtedly arguments may be presented regarding the actual quantitative values of health tradeoff boundaries. In general, one should expect that the debate will subside as the conflicts in the scientific input will be resolved. Participatory evaluation will also minimize the intensity of the debate. As long as all the environmental and economic interdependencies have been understood and the priority tradeoffs of all segments of society scanned and evaluated, boundaries for the health tradeoffs can be established that will be protective enough to satisfy all reasonable health concerns and flexible enough to secure the maximum feasible support for health goals.

Reflections

When confronted with the issue of integrating health into planning for development, I tried to address directly the operational meaning of the term integration as it should be applied to health and development goals.

I advancedmy thesis and arguments regarding the subject of this conference as a response to the reservations I have about the attitude of a great number of experts when they formulate guidelines for social actions. I characterize this attitude as paternalistic, analytic, reactive and quantitative. It is paternalistic because it completely

disassociates expert recommendations from the implications of the public's sentiments, beliefs, opinions and habits which may, in most cases, be an even more powerful determinant of social values than knowledge. The attitude of most experts is also analytic in the sense that they fail to study goal interdependencies. This failure results from the experts' dependence on the "scientific method" which is the epitome of analysis. Consider for a moment the irony of addressing the issue of goal integration by applying analysis which in fact demands disaggregation. Furthermore, the recommendations of most experts are reactive since they provide answers to problems that have already been defined and fail to deal with the problems they may generate. The environmental implications unaccounted for in the development plans of economists provide very supportive evidence. Finally, expert recommendations are for the most part "quantitative" either because they translate in quantitative terms even qualitative attributes or because they exclusively align with only a quantitative concern about the public interest.

In essence, I tried in this paper to argue for a participatory, systematic, anticipatory and qualitative integration of health into planning for development.

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HEALTH SECTOR ASSESSMENT*

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Introduction

The decades since World War II have witnessed growing concern in developing countries about upgrading their health services, and a reciprocal desire among developed countries and international donor agencies to provide technical and financial assistance for that purpose. A growing recognition of the inefficiency and waste resulting from haphazard programming and from uncoordinated aid has led to the development of several methodologies for assessing the health needs of developing countries and for developing rational, integrated health programming.

In this paper we analyze a major methodology for health planning, Health Sector Assessment (HSA), employed principally by the United States Agency for International Development (AID). Although health planning techniques have been used by international agencies and national governments for at least two decades, the concept of Health Sector Assessment as a specific methodology is relatively recent (for other methodologies see, for example, Chasse, 1975a & b; PAHO/WHO, 1965; Ahmed, 1976; Cutierrez, 1975; IBRD, 1975). The purpose of this paper is to briefly describe the goals and design of the Health Sector Assessment and to explore its uses and limitations as a tool for health planning. The paper is based largely on the author's personal familiarity with this and other health planning methodologies, on internal papers and memos circulated by the Agency for International Development, and on informal interviews with health officials in international agencies.

Health Sector Assessment is conceptualized as a tool for coordinated and integrated planning directed toward improving health conditions in developing nations. It involves a process of gathering, organizing, and analyzing data on the health policies and resources of a developing country for the identification of possible solutions to its health problems. The purpose of a health sector assessment is to develop a strategy or set of strategies for health improvement in developing countries. As mentioned above, the concept of Health Sector Assessments as a specific methodology is relatively recent; it has only been used in a few Latin American and Middle Eastern countries since 1972. The demand for health sector assessment arose from the need for long term planning, on part of the donors, international financial communities, and the countries themselves.

Several factors have converged to create a need for integrated, long-term planning in the Third World. These factors include:

- More demand for health services;
- A scarcity of resources;

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The views presented in this paper are those of the authors and not necessarily those of the institutions to which they belong.

- The transfer of new technology, vaccines, and drugs; and

- Strong donor interest in providing preventive health services.

Congressional and administrative mandates in the United States have reflected these factors and have created the climate for this new approach. President Carter recently reemphasized the U.S. policy in his statement of May 2, 1978, announcing a program to strengthen U.S. participation in efforts to overcome disease and ill-health. The President stated: "Our efforts will be based on the following principles: -- a basic minimum level of health, nutrition and family planning services should be available to the world's poor, whether they live in rural areas or urban slums. Developing nations can eventually meet their own needs if we assist them in strengthening their institutions and building their own health systems. Community-based health care, including the use of community resources and the training of appropriate health personnel as near as possible to where they deliver services, is the most effective means of achieving the standard of health we desire for all people." The above affirmation of goals of U.S. international health policy by the President has led to active involvement of all of U.S. international health agencies in long term planning, this interest is also expressed in terms of interest in development of new methodologies for health planning. Assessment is one of the tools the USAID has used for long term planning. In order to understand its usefulness to planning, we need to know its purpose, methodology, and the nature of its final product.

The first section of this paper will describe the goals and design of this method.

The Concept of Health Sector Assessment

Health Sector Assessment, designed for efficiency and comprehensiveness, involves a team effort. It is important that members of the host country play a large part, since, ideally, the planning and design of future health programs will evolve out of the HSA.

The ultimate goals of Health Sector Assessment are:

- To provide a data base for programming AID support to the health sector;

- To contribute to the improvement of the country's institutional capability in health planning by (a) structurally analyzing health sector problems and alternative solutions, (b) assessing the country's health planning requirements and developing estimates of the manpower and resource requirements needed to accomplish those requirements;

- To establish a basis for national and AID investments within the health sector.

In order to accomplish these goals certain intermediate objectives must be met. Most of these are accomplished in the host country in the process of the assessment. These are:

1. Clarify the nature of existing health problems within the total social, economic and political context. (In particular, the political climate and the human and technological resources of the country appear relevant to the HSA; see Westinghouse, 1978).

2. Place in clear focus the important interrelationships of the health sector with the social and economic sectors.

3. Choose among several HSA models the one most appropriate to the host country's situation (more on the various models follows below).

4. Help to elaborate alternative health strategies in a format that constitutes a basis for choice and that is useful for decision-makers.

5. Promote and facilitate implementation of health development programs in high-priority areas.

6. Identify program areas requiring well-managed development projects. Such areas may include existing programs, possible revisions of those, and areas not yet addressed by existing or planned programs.

7. Strengthen national capabilities in health planning, in project formulation, and in program evaluation.

8. Identify program areas and projects for which foreign assistance may be forthcoming (e.g., from bilateral agencies, from the International Bank for Reconstruction and Development, from the United Nations Development Program, from the World Health Organization, or from the World Food Program).

It should also be noted that the idea of developing and implementing a health sector program that extends over several years and integrates multiple projects, is another possible objective of a Health Sector Assessment. Ideally, such a program should lead to more efficient utilization of resources in the service of national health goals. Long-term planning attempts to avoid the pitfalls of uncoordinated, haphazard health projects that in the past have sometimes diminished the effectiveness of foreign assistance programs.

The Initiation of an Assessment

The intricate processes that precede the Assessment offer insight into both the function and limitations of the method. What follows is a brief description of these processes.

The Director of the USAID mission and his technical staff are responsible for the first step in that it decides to provide assistance to a particular country. The kind or extent of health assistance that might be provided is determined on the basis of suggestions formulated by the Country health Ministries. With the aid of the technical staff's advice, the mission Director develops a plan concept (PID for an aid program). The PID is then approved in Washington, after which the Mission Director can make a decision to implement the project on site, provided the cost of the project is below specified levels. If the costs exceed a specified level the project is developed in detail, submitted to review committees in Washington, and approved again, before implementation.

It is important to keep in mind that political interests of the United States Government and those of the government of the receiving country underlie and determine the total amount of assistance that can be given or absorbed at any time, the nature of the projects which might be undertaken, and the allocation of resources and sites of proposed projects within the receiving country. Following are a few of the factors that must be considered in determining what health projects are suggested:

1. What has the host government formally requested or indicated through informal discussions? Does it meet the AID legislative mandate of helping the poor majority? Is it in areas of AID priority such as MCH services, integrated health delivery, environmental sanitation etc?

2. What would be the receptiveness of the host government to the idea of any American influence over its health policies?

3. What is the attitude of the existing economic leadership toward partial support of potential projects in the initial stages of growth and full support for maintenance in future years?

4. What are the political or economic motivations of the central government? Has the government developed a sincere interest in the health of a segment of the population? Does the government believe that improved health conditions of that segment will be advantageous to the economic development of the entire nation? What pressures are being brought to bear on the government to solve certain countrywide health problems? Does the government require help for a specific area of the country perceived as neglected for one reason or another and where the population is believed to have a disproportionate burden of disease and poor environmental conditions?

5. What countries or organizations are now participating in joint health programs or are urging that new programs be undertaken? Do they clash with U.S. interests or use up valuable resources or can they be coordinated to supplement or complement any U.S. proposals?

6. What sizable existent programs that have demonstrated their benefit to the population are being phased out because of inadequate support?

7. How many American nationals will be involved in the project? Can the AID mission provide the necessary support?

8. What obvious budgetary, political, or other constraints would affect the initiation and continuation of any project?

The process of project selection is multi-faceted. Sometimes projects are selected without long term planning. Other times, planning aid is requested in the form of health sector assessment. Prior to the initiation of assessment, the Mission or the Regional Bureau of AID may request a preliminary background paper on the country, or a Syncrisis. The "Syncrisis" is based on secondary research, varying in format and scope. It is designed to present a summary of known geographic, demographic, economic, and health data about the country, as well as a statement of the major health problems and an estimate of the resources needed for a full-scale HSA.

The Nature of a Health Sector Assessment

Several alternatives exist at this point, depending on AID policy considerations, on the interest and commitment of the host country, and on the constraint of available time, money and manpower resources. First, it is possible that, for whatever reasons, no further action will be taken. If a decision is made to proceed with an HSA, several alternative models are available, ranging in scope from a very limited effort to a rather comprehensive one. The following alternative models which a given HSA may adopt were developed during a recent Westinghouse evaluation of three past HSAs. (For a fuller discussion, see Westinghouse, 1978):

1. Preparation of an AID program plan only. This plan is the least expensive and places the minimum burden on the Mission and on the host country's government. Prepared entirely by AID staff or by consultants, it is tied to the AID funding cycle and addresses the HSA objectives as discrete projects rather than as components of the program-planning process.

2. Preparation of an AID program plan with selected additional objectives. This model is essentially similar to the first, except that a limited number of additional objectives may be included (Examples of additional objectives are formal training or a survey of nutritional conditions). The objectives, as well as the degree of involvement of the host country's staff, are decided on the basis of detailed negotiations with the host country's representatives. As in the first model, primary responsibility for program planning rests with AID.

3. Preparation of an AID program plan, with a parallel multi-objective health planner effort. This model is designed to reconcile AID's need for a program-planning document tied to its funding cycle with the host country's interests in broader or longer-range objectives. Such objectives may include extended training or otherwise expanding the health-planning capability of the country. This model calls for much greater commitment on the part of the host country, and is partly independent of the AID funding cycle.

4. Preparation of a national health plan, with other HSA objectives, followed by preparation of an AID program plan. This model aims primarily at producing "a comprehensive national health plan, from which the AID program plan would derive, and it would be carried out independently of the AID funding cycle" (Westinghouse, 1978: 8). This model requires the largest investment in resources and the most extensive commitment on the part of the host country.

If a decision has been reached to proceed with a "full-scale" HSA (model 3), a multidisciplinary team is put together. Team members come from the AID staff, from the U.S. Public Health Service, from consulting firms under contract with AID, and from the host country. Strong emphasis is placed on participation of professionals from the host country, since the concept of a full partnership in development is perceived as a crucial element of the HSA philosophy and process. The actual composition of the team depends upon the specific objectives of the assessment, but may include any or all of the following professionals (of course, several specialties may be combined in the same person):

1. Public health physician and primary care specialist, who may act as team leader;
2. Maternal and child health physician and family planning specialist;
3. Health manpower and training specialist;
4. Nurse-midwife, nursing education specialist;
5. Epidemiologist/environmental health specialist;
6. Pharmaceutical, medical supply and logistics specialist;
7. Health development economist/financial analyst;
8. Social anthropologist;
9. Program design specialist;
10. Vital statistics specialist; and
11. Sanitary engineering specialist.

Although team members usually have extensive overseas experience as advisors to AID missions, it is desirable that they have two or three weeks to collect and digest background materials before they assemble in Washington for briefings and departure.

The team may be aided by methodological and technical tools such as the Guidelines for Health Sector Analysis, a series of manuals published by AID and the Office of International Health of the U.S. Public Health Service. These guidelines, which are also intended for use by the host country's officials as well as by their American counterparts in planning or administering projects, cover such areas as the following:

- Financing the health sector.
- Economic appraisal of health projects.
- Planning for health manpower.
- Controlling communicable diseases.
- Planning for health services facilities.
- Cultural, social, and behavioral aspects of health planning.

The assessment team's visit to the host country varies in length, depending on the scope of the HSA. Typically, it may last three or four weeks. In advance of the visit, AID officials in the host country make certain preparations to facilitate the work of the team. These include briefings of officials in the Ministry of Health, in international health organizations in the country, and, ideally, in other governmental ministries relevant to health. Also briefed are staff members who are expected to work with and to host the visiting team. In addition, logistical preparations and work schedules are laid out as far in advance as possible.

The Health Sector Assessment

Depending on the model followed, the HSA will vary in length, format, and substance. The following are examples of elements that may be included:

1. Demographic data and forecasts. Information may typically include the age structure of the population, its rural/urban distribution, crude birth and death rates and fertility rates, infant mortality rates, and as many of the vital statistics as are available. Existing sources of data are used; usually no new data are collected. The purpose of assembling demographic data is to produce the best possible set of population (and population composition) forecasts. This is necessary not only for assistance in setting health targets, but also for developing strategies.

2. Economic data. The data may include, as a minimum, existing and projected health budgets and estimates of new program costs. Other data may include projections of the Gross National Project or of the growth of revenues and expenditures in the public sector. There are many uses for economic data of this kind, but the basic ones are: (a) to fit some boundaries on potential growth of the national health budget, (b) to take into account the likely impact of general development policy on the setting of health priorities, targets, and strategies, and (c) to estimate recurrent cost implications of new health investments.

3. Health status data. The data may usefully include a good national picture of the incidence and prevalence of disease by age, sex, location, etc. Possible tables

presented may include ones showing mortality rates and morbidity rates by disease class. It is most useful for these tables to include relevant inter-country or intra-country comparisons. These tables are used by the team to assist in the setting of health priorities and in the identification of targets for the program period.

4. Health Services and Environmental Health Services. Summary tables are presented of existing health establishments, environmental health services, and health manpower categories. The tables, showing the distribution of health services and environmental health services in different geographic regions, should provide an estimation of the extent to which the population in rural and urban areas has access to or utilizes such services.

5. Unit cost data. After determining the appropriate units of output (e.g., vaccinations performed, hospital bed days, health clinic visits, etc.), an attempt is made to calculate the cost per unit. These data, if available, are used in analyzing the feasibility of alternative strategies and programs.

6. Policy data. The team collects relevant data on a) national development policies, goals and objectives, b) national health policies, c) the extent of understanding of health planning and health policy analysis and of commitment to them.

The Impact of the HSA on Health Programs

The suggestions resulting from the team's efforts, are discussed within AID and in negotiations with the host country. These negotiations may (it is hoped) lead to the development of objectives and projects agreed upon by all sides, objectives and projects arising from, and supported by, the HSA. If AID is to partake in future projects, it may need to recruit long-term advisors and/or short-term consultants for assignment to the project.

An important part of the agreement concerns the organizational framework for carrying out the project. This framework may be the use of counterparts, the use of a joint organization for planning and administration, or the socalled "liaison approach."

The counterpart relationship, the one most frequently encountered in AID overseas missions, involves the appointment of local partners from the Ministry of Health to work with each senior American technician for the purpose of coordinating the work and of exchanging information. In practice, this system works well only when the counterpart is actually the head of a department and the American is acting as his advisor.

The joint plan is a small temporary organization composed of "technicians" from both sides led by "administrators" of equal authority. Ideally, all work together with a clear common interest and mutual confidence and make decisions jointly. For this work, the joint group must have a sizable degree of authority.

The liaison approach implies a separation between the two countries in both technical and policy-making functions. AID provides the funds, the commodity support, and the approval of the project. The host government plans and executes the project. This approach, although inefficient, may be used out of political necessity when a country does not desire foreign technicians, or when AID does not deem it advisable for American technicians to be directly involved in field operations.

Finally, it should be noted, if only for the sake of completeness, that (no joint projects or planning at all result from the HSA). This may be due to reasons explored below.

Criticisms and Limitations of Health Sector Assessment

Having briefly described the purposes and process of Health Sector Assessment, we will now discuss a number of problems and issues raised by the implementation of HSA in several Latin American and Mid-Eastern countries. The following issues were highlighted by the 1978 report of Westinghouse Health Systems to AID:

1. Conflicting HSA objectives. The HSA was designed to accomplish multiple objectives which often may turn out to be incompatible. These include a program planning document for AID, a comprehensive health plan for the host country, and building up institutional capabilities in the host country (the latter will be discussed below). AID requires a program-planning document tied to its funding cycle. This is a short-term effort which must be met in a timely and efficient matter. The host country's need for a comprehensive health plan is a long-term goal which requires considerable resources. An attempt to meet both of these goals impedes the achievement of both goals and strains resources heavily. Of the alternative models outlined above, only one addresses this dilemma; yet the relative weight assigned to the different objectives needs to be further clarified, and the distinct endeavors more clearly separated.

2. Inadequate fulfillment of the institution-building goal. If a major objective of the HSA is to enhance the host country's institutional capabilities in health planning and management, different resources and commitments are called for. Not only formal training of personnel, but reorganization of the health sector is required Yet this is rarely achieved. One reason is the pressure of time; another is the failure to institutionalize the new skills on a permanent basis, since after the HSA is completed the host country's participants may return to their previous jobs or may even be transferred outside the health sector. A further reason is outlined below.

3. Inadequate involvement of host country nationals. Whether because of lack of skills, lack of time for training, scarcity of manpower, or the pressures to produce a timely and efficient planning document, a discrepancy often arises between the roles of visiting team members and those of the host country nationals. The latter commonly contributes little to the endeavor beyond descriptive statistics, while the former perform the high-powered analysis and eventually write the document. This undermines the value of the HSA as an educational or institution-building tool.

4. Conflicting AID and host country objectives. While AID is concerned with producing a program planning document, the host country may have longer-range goals, such as preparing a comprehensive national health plan or building up institutional capabilities. The host country may view the HSA effort as a "donor project," a bureaucratic requirement unrelated to its own real needs or duplicating already existing efforts. The need to withdraw scarce, highly skilled manpower from other areas of the already strained health sector presents further problems.

5. Inadequate follow-up. On several occasions the HSA has turned out to be a one-shot effort, instead of the hoped-for basis for future planning for cooperative projects. This has resulted from AID's failure to translate the documents into Spanish and, in some cases, from the host government's reluctance to disseminate a document perceived as harmful to its image.

6. Policy limitations. The HSA must operate within the framework of AID's changing policy constraints as well as those of the host country. Consequently, it may neglect to look at the total health picture from an open-minded point of view and to offer fresh policy options. One example is the current policy of AID not to build new hospitals. This policy obviously limits the options that may be considered. Similarly, current AID priorities do not include several important areas of health, such as mental health. The HSA will therefore not address itself to these problems. These constraints limit the utility of the HSA as a comprehensive health planning document.

7. Cost/effectiveness analysis. HSA's have ranged in effort from two man-years in one country to several dozen man-years in another. Given the limited uses of the HSA, it is difficult to justify such variations in expended resources. A more realistic appraisal of the different possible outcomes of the HSA may help to tailor the expenditure of resources more closely to the expected benefits.

As it stands now, the HSA has proved to be more useful as a short-term, program planning document than as an ongoing, comprehensive effort to reorganize the health sector of a country. As an educational tool, the HSA has proved more useful in increasing the awareness of host country's personnel of the significance of health problems than in upgrading institutional capabilities in analysis and planning, or in significantly re-directing their health policies. As in the case of any attempt to reorganize major sectors of government on a more rational and efficient basis, political, economic, and bureaucratic forces combine to limit the impact of the change. This is the case not only in developing countries but in Western countries, too, of course. This does not call for abandoning the efforts to apply scientific analysis and planning techniques to social problems. But it should lead us to realistically appraise both the objectives and the priorities of such techniques, to consider the limitations of resources and of external factors, and to direct our efforts to where they will produce the most good.

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SOCIO-CULTURAL FACTORS IN HEALTH PLANNING THROUGHOUT THE WORLD

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In his "Essay on Man," Alexander Pope urged,

> "Know then thyself,
> Presume not God to scan.
> The proper study of mankind -- is man."

The preface of a recent book on the importance of cultural factors to health care delivery programs presents very well the justification or purpose of the effort at hand. It states that health workers everywhere need to gain "a more complete understanding of both the visible and invisible elements of their own culture, and the culture of the community around them that is necessary if they are to provide a program that really meets the needs of the community."[1]

A great world-wide ferment is in process with reference to the recognition and meeting of the rights and needs of all people. Among the many human rights and needs at issue, health is accepted to occupy a key position. The logic is clear. Without health there can be no pleasure, no productivity, or indeed existence. Mindful of this, the World Health Organization recently accepted as its overriding challenge the assurance of "health for all by the year 2000."[2] Whether or not this ambitious goal is achieved to any significant degree will depend among other factors upon the approach taken by those who strive for it. At test is their very ability accurately to perceive, define, and assess the health and related problems which confront them, the manner in which those affected perceive them, and the many non-health factors in the culture which may on the one hand influence the occurrence and perpetuation of health problems or may on the other, multiply or enhance opportunities to ameliorate them.

In the assessment of the health status and problems of developing areas, efforts frequently have been concentrated on the accumulation of as much data as possible regardless of its qualitative adequacy. In addition, emphasis tends to be placed upon factors which, while perhaps germane to the Western scientific and technologic mind and scene, are not necessarily pertinent to the case at hand. Where this occurs, it is doubly unfortunate in that it involves, hence adversely reinforces or affects, not only those sent by the United States, and other Western nations or international agencies to serve as consultants and advisors to the developing areas. More important in the long run has been the decreased usefulness of professionals of the receptor societies and nations who, in the course of their education have been perhaps excessively and sometimes exclusively exposed to Western values and emphases. As a result they may easily become to some extent cultural strangers in their own land.

Examples of the foregoing have been all too frequent. Often their manifestations have been nothing short of tragic. There comes to personal memory the frustrations in dealing with several such well-intentioned individuals, by that time in positions of high authority in a nation which suffered chronically and massively from innumerable preventable diseases. Upon being offered assistance from the then relatively new U.S. technical assistance program, the first two items requested were a cardio-respiratory physiologist

and electron microscope (then only recently developed and very expensive). More recently in a nation with similar circumstances an entirely Western-trained physician took advantage of international aid to have constructed and equipped under his direction a splendid hospital exclusively for heart patients, complete with the most modern and expensive intensive coronary care units and facilities for the most advanced heart surgery. Meanwhile across the road continued with great but accustomed difficulty the very large, inadequately staffed and equipped general hospital which attempted to meet the general health, medical, and institutional care needs of tremendous numbers of people.

The past century has been a period during which the Western way came to be regarded widely as the superior way, the most effective way, the only correct way. This view has been accentuated especially during the past half century during which the Western way has been extensively fortified by burgeoning and phenomenal scientific and technological advances. As the world concurrently became smaller and international contacts and relationships became more intimate, the conviction that the Western way was innately and universally superior became ever more firmly established. After all, since it accomplished more and produced more, and with greater dispatch, it must be better. This in turn became parent to a number of other questionable socio-cultural assumptions. Several merit special mention. It was assumed by many that suggestions and methods based upon Western concepts and scientifically proven facts would be readily accepted by people in other societies and cultures. If they did not do so they were regarded as obviously obstinate, less intelligent, and somehow inferior. Related to this is the common misconception that all people share the same (i.e., the Western) definition and interpretation of health, disease, and death. This ignores the intimate and meaningful relationships in many cultures between individuals in the present with those in the past, as well as with many natural forces around them. As a consequence, they regard disease not so much as something to be controlled or cured as to be understood as part of the plan of life and nature. These views and their consequent actions have been put in a slightly different sense by Kaufman:[3]

> "The totality of the organism and its adaptiveness...can be placed in a frame of reference which is truly psychobiological. Psychogenesis, ontogenesis and ecology, each with its proper weight and each unique for the particular individual involved, remain the bases for understanding the functioning of the individual in health and disease."

Failure to understand such views leads in turn to the common Western attitude that indigenous folk healers are necessarily useless or dangerous quacks or charlatans who prey upon the superstitions of the ignorant and who have little or nothing of value to offer. Based upon this interpretation, it then seems logical that the presumably more correct, modern, Western, scientific and biomedical model cannot be adapted for use by them or indeed by much of anything traditional in the receptor culture and society. Instead they must be either ignored or discredited, and replaced by the obviously sound and superior Western approach. The glib assumption is, of course, that if Western medicine and health protective methods are simply made available, the people will not hesitate to cast aside their ancient traditional ways. Many have pointed out that traditional and indigenous systems of medicine have existed and been followed for many centuries in all parts of the world, even where modern care and facilities are available. Indeed, the writer well remembers examples in the household of his own childhood. Fortunately, in very recent years the concept of mobilizing the manpower component of traditional medicine for primary hygienic intelligence, health education and primary health care services, as partners of those who provide the advantages of Western scientific medicine, has been gaining ground in many countries.[4] An excellent example is given by Dr. Cynthia Nelson, Professor of Anthropology at the American University of

Cairo.[5] She points to the beneficial effects at the primary level of health care services of the cooperative efforts of the traditional midwife (daya), her professional counterpart (hakima), and the university-trained nurse (mumaridda). "All three," she indicates, "are of paramount importance in dual societies, such as Egypt, where two or more traditions thrive and where those who provide medical care may be of different cultural and social background than their clientele."

To the extent that misconceptions, such as those that have been discussed to this point exist and are followed, it is little wonder that avoidable blunders, mistakes, animosities and delays have sometimes occurred in the process of well-intentioned attempts to be of assistance to others. The most important word here is "avoidable." In a real sense it represents the purpose of the insightful and very practical manual that is printed elsewhere. Its title implies that essential point: -- Sociocultural Factors that Affect Health Care Delivery in Developing Countries.* The author, Dr. Renee A. Fraser, has performed a difficult, yet enviable task when one considers the complexity and extensiveness of the subject. Beginning with the development of a necessarily selective annotated bibliography, which by its nature is fluid and everchanging, she has emphasized those items which address fundamental issues or which provide useful historical or other overviews and which are reasonably readily accessible. From this logical beginning she has proceeded to a concise and coherent review of the literature.** Thus, beginning with a significant fund of existing published observations and viewpoints, she has developed a synthesis of important basic concepts that it is believed will stand the test of the flow of future literature. With these documentary components as a backdrop, she has applied her professional expertise as a social psycholgoist to the preparation of a very practical and readable manual of wide potential use. With reference to users, the manual should be of special value on the one hand to those concerned with assessment in the detailed or micro-sense, and on the other hand to those concerned with planning in the broader, presumably longer-ranged or macro-sense. It must be realized, however, that this represents a somewhat simplistic view. Necessarily, assessment is a fundamental part of the planning process, and "macro" decisions derive in substantial measure from "micro" considerations. These functions are not so much like two sides of a coin as they are an evolving or spiralling continuum, the one (micro) growing and blending into the other (macro). Furthermore, through time, macro considerations, decisions and activities continuously affect the micro factors to varying degrees and in various ways.

In other words, micro and macro considerations constitute two mutually affective parts of a time-continuous progressive system. Thus, Montoya-Aguilar[6] introduces his excellent exposition of this concept by pointing out that "National policy goals, for example, deal with the various needs and demands of individual members of society, as well as of groups or classes and of the nation as a whole, that require to be fulfilled."

When viewed in this context, the manual appears to have many specific uses and values to both foreign and domestic evaluators and planners. Among those that may be listed are the following:

- avoidance of mistakes, antagonisms, resistance, blind alleys and the loss of face,
- local health assessment and planning,
- national health assessment and planning,
- analysis of health and illness and the reasons for them,
- determining the extent that health needs are being met,

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* Volume 4, International Health Planning Series, HEW, Washington, 1974.

** Volume 4, International Health Reference Series, HEW, Washington, 1977.

- determining similarities and differences between places and cultures, inter-country comparisons,
- point to geographic or population inequities,
- determining culture-bound health behaviorisms vs. those that are basic universalities,
- determining cultural factors related to health care delivery,
- determining the appropriate relationship of health planning to overall socio-politico-economic planning,
- greater assurance of cost effectiveness,
- achievement of understanding, acceptance, assistance, and participation by citizens, government officials, traditional healers, etc.,
- use as a tool in training health and other personnel.

It is encouraging to note the increased emphasis being placed upon the application of the social sciences to health and other problems of people. This is particularly important during the present period of great and widespread changes and transitions, -- in place of abode, working conditions, lifestyle, interracial and intersexual relations, communication methods and access, and education, -- to name but a few. All of these and many other changes, of course, have far reaching implications for health and health care policy. It behooves all health planners and workers to be sensitive to them. As a consultant to WHO, Dr. E.M. Bocksett of Nottingham University[7] sees social sciences as involved in the assessment of basic changes in the health care horizon, specifying particularly: "Changes in disease prevalence, in our understanding of causes and in the response of disease to care; changes in health services organization; changes in medical and allied education." He added that "sudden changes in affluence and ways of living here already brought 'epidemics' of diabetes, motor vehicle accidents, some forms of cancer, cardiovascular diseases and perhaps mental illness to parts of the Eastern Mediterranean Region, where he has been working." Prevention of these conditions he pointed out "involves changing habits." It may be permissible to restate this by saying, "...involves understanding habits and behavior and where necessary adapting or changing them."

The importance of this cannot be overemphasized. By now it is clear that for all practical purposes these are only two types of diseases: behavioral and environmental, -- and so many of the environmental threats to health, limb and life arise out of personal or ecological misbehaviorisms. Furthermore, while some might point to genetic and organic diseases as exceptions, more and more of them are found attributable to behavioral and/or environmental faults. With specific reference to health-related habits or behavior the fundamental consideration for health workers is to look for them, accept their reality, attempt to understand their genesis and purpose, determine if they are truly inimical or possibly helpful to health, and if necessary try to adapt them rather than destroy them. It is recognized that some purists insist that the mores and customs of a culture have a sort of evolutionary and historical sacredness and must not be tampered with. One cannot help but regard this viewpoint as folly. After all, history and progress are tampering all the time, -- and not always for good.

Dubos[8] has put this in perspective in saying: --

> All technological innovations, whether concerned with industrial, agricultural, or medical practices, are bound to upset the balance of nature. In fact, to master nature is synonymous with disturbing the natural order. While it is desirable in principle to maintain the "balance of nature," it is not easy to define the operational meaning of this idea. Nature is never in a static equilibrium because the interrelationships between its physical and biological components are endlessly changing. Furthermore, man placed himself apart from the rest of nature when he began to farm the land and even more when he became urbanized. The survival, let alone growth, of his complex societies implies that he will continue to exploit and, therefore, upset nature. The real problem, therefore, is not how to maintain the balance of nature, but rather how to change it in such a manner that the overall result is favorable to the human species.

Western approaches to illness are based upon demonstrable pathology, hence human health is considered essentially the absence of disease: Western-trained physicians and other health workers, therefore, tend to approach the human problems which confront them by two distinct paths; the reductionist based upon best available data and technology, and the humanistic which depends largely upon intuition. While these two approaches do not, and in the minds of many should not join, in actuality they frequently do in arriving at decisions. Thus, the still uttered phrase "the science and art of medicine." Nevertheless, the feeling cannot be avoided that increasingly in the West, such consideration as may be given to the "art" of health care, folk ways or tradition tends to be in a condescending manner.

As increasingly successful diagnostic and therapeutic techniques and materials have been developed over the past half century, Western medical education and indeed much else in the training of other categories of health workers has been built upon the pathology-lesion-disease model. In the process it became reductionist, reducing human suffering to disease. As a consequence, it was the symptom, sign or disease that came to be treated and hopefully cured, -- not the patient. In rather recent years it is becoming realized that this leaves something quite important unfulfilled and unsatisfied. By contrast, humanistic medicine, increasingly referred to as "wholistic health" encompasses much more, -- indeed the whole circumstance, experience, environment of the individual or group.[9] In so doing it truly deals with the whole person -- or the whole group -- as the patient. In its broad sense, therefore, healing encompasses more than curing. It implies a dynamic relation between the patient or group in need of assistance and the healer whose function is to become aware of and bring to bear all of the various forces which may contribute to the restoration or protection of well-being. Alteration of the discrete pathologic process, while obviously important, is only one of these forces. In practice there are many peripheral religious and other groups who ignore the latter yet achieve some degree of success.[10] By like token, many Western health practitioners ignore the former, yet clearly achieve varying degrees of success by scientific intervention. But how much better might be the conjoined use of the best of both.

There are many sociocultural components or factors that should be taken into consideration in approaching health planning and program development. Among the most significant are language, beliefs, communication systems, family structure, politics (overt and convert), economics, education, religion, rituals, symbols, health beliefs and practices, traditional and scientific health systems, and rules and interrelationships including personal, group professional, and political, and many many others. King[11] has described these in the following more prosaic terms in his discussion of the study of a strange culture for the purpose of health planning.

The Family. What are the common patterns of family composition? What is the age of marriage and how stable is it? What are the strongest emotional ties within it? What are the obligations towards the extended family of uncles, aunts, and cousins? What is the status of women?

After the family, what other important associations are there? Political parties? Guides? Agricultural cooperatives? Initiation groups? Religious communities?

Who are the influential members of the community? Chiefs? Party officials? School teachers? Ministers? Hospital assistants?

What accords status in the community? Cattle? Wives? Children? Land? Money? Education?

What are the values of a community? Leisure? Conformity? Happiness? Fulfillment of the personality?

What are the customs of the community over the use and ownership of land and money? How is the land inherited? What is the income of the average family? Is money the common property of the family? Is there money available in the community for medical expenses?

What are the attitudes and practices of the community in matters of health and disease? What is the traditional system of medicine? Do people consult their healers first, or only after scientific medicine has failed? What are the concepts of causation of the common diseases? Does the indigenous system of medicine include the idea of prevention?

On this crowded and complex stage, what are the pitfalls to be avoided? This critical question could be approached by examining some of the consequences of overlooking such factors, as well as some of the results to be achieved by adopting, adapting and using certain of them. Examples of negative results of insensitivity to cultural divergencies and variations are legion. To produce such a litany, however, while it might provide vicarious interest would serve the present need poorly. More useful to agree with Newell's[12] introduction of the provacative WHO book, Health by the People, where he says, "it is not necessary to bother to document the absurdities of the different bureaucratic responses to agricultural, educational, health service, or development needs." The contributors to that publication

> ... do not question the fact that infants need food, pregnant mothers need to be delivered, immunizations are useful and prevent illness, or that sick people need treatment. On the contrary, they emphasize that these are some of the expressions of community action and that they will inevitably follow if you proceed in a reasonable way and take the wider issues into account. The wider issues presented include: productivity and sufficient resources to enable people to eat and be educated; a sense of community responsibility and involvement; a functioning community organization; self sufficiency in all important matters, and a reliance on outside resources only for emergencies; an understanding of the uniqueness of such community coupled with the individual and group pride and dignity associated with it; and lastly, the feeling that people have of a true unity between their land, their work, and their household.

What a comprehensive and wise summarization of a complex multifaceted problem! In order to crystallize the place of health in this and to provide a compass for planning and action, Newell also emphasizes that "health development is a part of community development and that the health of individuals and communities will improve if a continuing self-sustaining process of community development can be stated."[13]

While it is true that conventional institutionalized health services rank lower in many nations and societies than do many other activities, health planners should not fatalistically accept this as an excuse not to insist upon inclusion of health considerations in overall area or national planning. There are many hidden costs of development schemes, and more than one has resulted in tragedy as a result of inadequate or no consideration of cultural and health consequences. One can point to numerous and very costly projects involving power production, agricultural irrigation, deforestation, mining, and other industrial development, which eventually produced far more harm and economic loss than good, for lack of attention to the sociological and human health effects.

Aside from their avowed major purposes, such as agricultural or industrial development, what other kinds of changes often result which have obvious relevance to the health of a population?

1. Overall changes in man-habitat relationships (ex., working in new farmland under new geographical and geo-zoological conditions; relocation to a different climatic and ecologic area, often with different immune-susceptibility relationships).

2. Increased population movement, mixing, and concentration (ex., construction of roads, highways, and other transportation networks; migration of rural people to towns and sites of economic opportunity such as mines, factories, hydroelectric or irrigation projects; relocation of communities, etc.).

3. Changes of patterns of water flow and use (ex., building of irrigation schemes, dams, and ponds; use of polluted water resources in undersanitized and overcrowded towns).

4. Changes of vegetation cover (ex., altering ground cover, crop changing, overgrazing, deforestation, landscape denudation, and soil poisoning with effluents).

5. Changes in micro-environmental conditions (ex., changes in housing, neighborhood, and settlement patterns; in house styles and materials; in pathways, streets, and highways; in modes of transportation, water sources, etc.).

6. Changes in value systems and social sanction systems (ex., severe and abrupt changes in life styles such as an urban environment or in sociologically heterogeneous large scale economic schemes; separation from kinsmen, the erosion of traditional systems in economically and culturally deprived situations as in urban or suburban slums).

To what conclusion does this lead? Of necessity, health planners cannot ignore political and economic realities. If they do they invite, indeed assure, failure whether immediate or delayed. On the other hand, they must be constantly aware of the fact that no nation is populated with politicians, bureaucrats, economists, and industrialists. The World Bank has estimated that 85% of the 750 million poor in the developing world are in a state of absolute poverty -- as measured by an annual per capita income equivalent to $50 or less. Most of the remaining 15% are considered to be in a state of relative poverty, below one-third of their national averages. And importantly, more than 80% of these unfortunates, who are in desperate need of the most elemental health and sanitary

assistance live in rural areas, -- far from the true comprehension and awareness of the majority of politicians, bureaucrats, economists, industrialists, -- and yes, scientists and professionals.

Recognizing that the determination of national priorities and the selection of principles to be followed in achieving them depend in the final analysis upon the perceptions of politicians and economists, it is insisted that sound and effective health policies and programs can be developed and implemented in any given political-economic system, if those responsible for public health, in addition to their professional management and technical skills have sufficient knowledge of how public policies come about and develop. Montoya-Aguilar[14] summarizes this well in urging that "... political science should eventually play at the health policy formulation level a role similar to that which epidemiology plays in strategic health planning, i.e., helping to explain the problems and to find their solutions."

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PSYCHO SOCIAL AND CULTURAL ASPECTS OF INTERNATIONAL HEALTH PLANNING: THE CHALLENGE OF PROVIDING HEALTH CARE ASSISTANCE TO DEVELOPING COUNTRIES *

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International health planning has faced the challenge of providing effective health care for all the people of each nation, for the last three decades. The donor nations have spent billions of dollars to improve the health status of people in the developing countries. The multilateral lending institutions, such as the World Bank, have made large health loans based on their perspective of what the countries needed. Technologies and advisors are pouring into developing countries to assist their bureaucracies in the management of their health systems, to train manpower, to supply drugs, and to clean water. Has this massive help been successful to date? Have the donor nations met the challenge of providing appropriate assistance to the developing countries? Are there new approaches to health planning that need to be considered?

This article tries to answer some of these fundamental questions, and offers an alternative approach to the challenge in a conceptual framework which includes sociocultural factors in international health planning. Many of the donor nation bureaucracies pay lip service to sociocultural factors as being good, helpful, and even important, but they have not found an operational method to include these elements in their project planning. It is our contention, not only that sociocultural factors must be included systematically in international health planning, but that the communities involved should participate in planning and providing services, no matter what the origin of money for the project. One of the authors' work in mental health planning (1), (2), has supported the thesis that roots of mental health lie very deep in the community, and that effective planning needs the participation of those affected by it. We suggest the same is true in health. This paper will deal with a psychosocial framework for the conceptualization of health and health planning which will lead to community participation work. Community participation in itself will be the subject of another paper.

Where are we today in our efforts to help developing countries? The answer to this is given by the director-general of the WHO, Dr. Halfdan Mahler, who stated that "the most signal failure of the World Health Organization, as well as of Member States, has undoubtedly been their inability to provide the development of basic health services."

Kurt Waldheim, as Secretary General of the United Nations, reflecting on this remark, has supported the availability of basic health facilities for all.

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* The views presented in this paper are those of the authors and not necessarily those of the institutions to which they belong.

By "basic health services," it is meant: preventive health care for urban and rural populations; clean water; the provision of basic medicines, hygiene; decent standards of living; the disposal of sewage; balanced diets; and knowledge of birth control. Waldheim makes the statement, "it is our judgement that in the developing countries--where in some areas there is only one doctor to 40,000 epople--it is undoubtedly possible to design a health-delivery system that has wide coverage, that people can afford, and that provides the primary essentials." (4)

Given the many well-considered descriptions of what is needed to provide effective health care and the equally well-considered evaluations that systems to provide such care are possible for the developing countries, we must ask what has gone wrong. Indeed, what attempts have been made; how may we profit from those experiences; what do medical science and the social sciences have to offer the developing countries?

A review of comments from individuals who have been leaders in the field of providing for and studying health care in these countries leads to several mitigating and handicapping factors. However, one dramatic error stands out. According to Bryant, "A root cause of these inadequacies in the less developed countries is that their patterns of medical care and education of health personnel are copies closely from western countries, particularly Britain, France, and the United States. There has been great reluctance to deviate from these patterns, even though they are often seriously irrelevant for the less developed countries." (5)

What is known today as "western" medicine is largely derived from European and American practices. It is only recently (the past 50 years) that this medicine has had a "scientific basis, has been able to systematically understand many diseases, and produce what Dubos calls "the magic bullets of medicine." Yet in a relatively short time, western medicine has come to dominate most of the responses to health and illness throughout the world.

Along with this approach to health care, there has been a growing, if long overdue appreciation that transferring western medical technology, systems, and approaches to developing lands is often an absolute detriment to an effective and appropriate health-delivery service. (3) It has become evident that many of the most intractable health problems are closely linked to factors of the environment, life-styles, social customs, and other crucial elements not part of the western tradition.

The evidence abounds in developing countries of the problems associated with creating programs based on western medical premises without consideration of the relevant cross-cultural variations. Benjamin Paul's Health Culture and Community (7) presents a series of case studies on this problem. One particularly devastating example comes from Somalia. When that East African nation attained independence, the European Economic Community (ECC) presented to that nation of nomads an ultramodern hospital--a building that belonged in Brussels. The structure almost reduced the nation's health budget to the breaking point while also centralizing almost all medical services in the capitol city. The hospital served the wealthy few, but the great majority of the population, nomads, suffered even more neglect. Similar is the case in Liberia where the budget of the JFK hospital is bigger than that of the Ministry of Health.

There are major deficiencies in our "scientific" curative approach to important diseases. The relative helplessness western medicine has demonstrated in treating patients with schistosomiasis and liver-fluke diseases

are well-known examples. McDermott has pointed out that western medicine lacks truly decisive treatment or preventitives for the leading causes of death and disability in young children: diarrhea and respiratory diseases. The malnutrition, he relates, is a consequence of the eating problems and cultural beliefs of these people. These observations lead to the important point that some of the leading causes of mortality and morbidity are not subject to the easily packaged cures of modern medicine but are tied up with culture, customs, and the ways in which people live their lives.

The Technology Transfer and Behavior Technology

For people in developing countries, part of the American dream is the application of science and technology to health. To fulfill this dream, the donors have exported its technology. With technology we implement the reduction and disposal of wastes; for populations we develop extensive drinking water and recreational water facilities. In part, because of the West's remarkable achievements, which have resulted in health improvements in this country, there exists a great desire to share this knowledge. However, neither the generic value of the technology, nor the appropriateness of such technology to developing countries is clear. The introduction of technology brings inevitable problems. Chemical agents filtering water are now suspected to be cancer-provoking. Mosquitos have become resistant to DDT allowing new outbreaks of malaria in Nepal and Pakistan. Many of the additives in bread and enriched flour may lead to cancer of the colon. Bacteria formerly treated with antibiotics are now immune to these same drugs. The limitations of western technology are, however, rarely discussed fully in the developing countries. Complex technology with its inherent risks for developing countries is far from understood: even when understood, risk/benefit judgements are not always made. For example, drugs that are controlled in the United States are distributed responsibly rather than economically in the developing country, without even a warning. Chlormycetin is still being sent in loads without warning to the dispenser or the users. The birth control pill is still distributed to women unaware of its side effects.

It seems clear now that the application of physical and biological sciences alone will not solve the problems; the solutions lie elsewhere. Only if people are willing to use birth control methods can better contraceptives control population. Clean drinking water is beneficial only if used consistently, for all injestion purposes, including dishwashing and only if it is accepted by the consumers as <u>better</u> water. Sanitation projects will work more effectively if they instigate the general practices of good hygiene among families. In short, physical and biological technology are less than fully effective without a supporting knowledge, some degree of understanding, and practice with behavior change.

In the developing countries there is a large gap between what medicine is capable of producing, what resources are availabe, and what is being produced. The possession of technology has not led to its effective application in the real local setting. For example, anemias, with nutritional origins, are common in the developing world. Young children, pregnant women, and nursing mothers frequently have a low level of hemaglobin and require more iron in their diet. Though iron is cheap and available to most who need it, we have not found a method of increasing the iron intake of vulnerable groups. Similarly, the same situation exists with Vitamin A distribution, a deficiency of

which leads to xerophthalama and keratomalocia. Synthetic Vitamin A is produced commercially at a relatively low price, yet the Vitamin A problem is still with us. Thus, we have technology without the ability to translate it into local level action.

One reason offered for these problems is the developing nations' lack of motivation to apply therapeutic technology. It is argued that the expense is too great or that many donor technologies are unsuitable. While this may be true for some of the higher priced technologies, it is not a general rule as illustrated by the problems with Vitamin A and iron distribution. Probably, the reason is somewhat deeper and understandable. The therapeutic technologies require health manpower resources, equipment, implementation techniques, and monies not at the disposal of a developing country. Most popular are those technologies which can be applied through the village. But application of even a preventive technology, like innoculation, requires social technology for it involves significant modifications in the people's lifestyle and acceptance by them of western concepts of medicine. No technology whether therapeutic or preventive, can be transferred without changes in attitudes and behavior by the intended recipients. We must have social understanding along with technology.

The absence of social technology has made the donors of the western world into the shippers of hardware technology. The donor agencies have become "shipping agents," instead of participants in a culture. The reasons for this conception of the aid function are found in the assumptions under which the donor programs operate. Some of the assumptions are:*

(1) Western clinical practices and institutional systems are universal in acceptance and application. The faulty expectation which accompanies this attitude is that other societies will naturally desire to emulate the West and will insist upon the adoption of modern medicine with its accompanying systems.

(2) Problems encountered in developing a user population and gaining acceptance are attributed almost exclusively to the locals. There is an implicit assumption that their attitudes and motivations must be changed rather than one examination and/or change in the program or services. Reasons for lack of acceptance are most likely to be in both camps. But, the bureaucracies of donor nations must comprehend and acknowledge the incentives which history illustrates in order to make their programs effective.

(3) The absence of the application of a careful social technology is also evident in the bureaucracies of some developing nations. The specialists and medical professionals who staff the bureaucracies in most aid receiving nations usually have been trained in the West. As such, they have grown to accept and appreciate the benefits of that system. Thus, the bureaucracies of developing nations accept the programs of donor nations due to familiarity and the recommendations of other bureaucrats, rather than because of the usefulness of the programs in meeting the needs and expectations of the local people.

(4) Since the West has developed an effective health technology of infectious diseases, there exists an assumption that by the same means it can master all diseases. But, this is not the case. In fact, the West has much to learn from the developing world. Healers in those countries have been able to identify and affect some of the psychosocial variables, impacting on heart disease, obesity, hypertension, etc. Many of those the West is just now discovering. So, the developing countries, even if they are willing, should not abandon their own methods and only replicate the western system. Important elements in healing and health would be lost.

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* The writers are grateful to Dr. John Foster for some of these ideas which he has presented in an AID Symposium in 1976.

The answer may be in a compromise between indigenous systems or traditional systems of medicine and the western approach. Acute and infectious diseases yielding to treatment by antibiotics and vaccines should be treated by allopathic doctors. Disorders with major psychological components should remain the domain of the traditional healers, Hakims, etc. Furthermore, both types of healers working together will create a more effective and more popular health system.

The Patterning of Culture

A fundamental reason for the inadequacy in transferring western medicine to developing countries is that each culture has its own way of organizing experience. In the area of health, communities vary in their manner of segmenting the gradient of health illness and in the kinds of phenomena to which these states of health are assumed to be connected. The dividing line between normalcy and illness shifts from one group to another, and the categories of sickness are subject to cultural variation. Without awareness of these variations and sensitivity to the perceptions of health and illness in each culture, one cannot provide effective "health" care.

For example, the mestizo population of coastal Peru and Chile divide systems of medicine into two classes, scientific and popular, and diseases into five major categories:

- Obstruction of the gastro-intestinal tract.
- Undue exposure to heat or cold.
- Exposure to "bad" air.
- Severe emotional upset.
- Contamination by ritually unclean persons.

Household remedies are appropriate for all classes of sickness. "Scientific" doctors may be consulted, but only for illnesses assigned to the first two categories. For the other classes of sickness, only household remedies are deemed appropriate; if these fail, a folk specialist is called. Mestizos have patronized clinics and doctors for other matters but not for maladies popularly ascribed to air, emotional upset, or ritual uncleanliness. For those disorders, it has been thought that doctors' remedies from western medicine are ineffectual or actually harmful because the western-trained doctor does not "know" these illnesses and does not "believe" in them. Yet because of the similarities in symptomatology, tuberculosis sometimes masquerades as "fright" and so remains inaccessible to the doctor or the health center. (8)

The history of culture shows that communities and nations accept only some of the elements available for borrowing from another culture. Moreover, the borrowed idea or practice is usually reinterpreted and modified to fit the particular environmental and cultural framework. (7)

Programs that seek to alter health practices and attitudes constitute efforts to change the local culture. These health innovations are subject to selective acceptance and modification. Indeed, acceptance or modification is not a random process but depends on:

- How the new idea is perceived by the potential recipients.
- How it accords with their values and assumptions.
- Whether it is consistent with their system of social relationships.
- The status of the innovation.
- The implications of that status for the various segments of the community.

Some resistances to change can be reduced by changing the presentation of the innovation to consider the particular culture. Certainly any attempted change should not challenge established beliefs or practices that are fundamental to the stability of the particular social or cultural system. Any attempt to effect changes in health care must be considerate of these established beliefs and practices. In the past, the western approach has been to provide needed changes in health facilities, treatment, and/or sanitation. But, often these changes have not impacted the health situation because of a lack of foresight in considering the complete conception that a culture has of health.

The "Western" Approach

A basic proposition for providing effective health care in any non-western culture has been to be aware of the basic beliefs and practices that are fundamental to a culture. It is clear that the imposition of the "western" medical approach has proved ineffective. If we are to be sensitive to cultural variation and still attempt to provide the benefits of western medicine to the developing world, how are we to accomplish it? Some translation must occur. Perhaps one should begin by understanding the "western" approach.

The "western" approach adheres to the medical model. Discussing both physical and mental illness, Ludwig (9) posits that the medical model premises "that sufficient deviation from the normal represents disease, that disease is due to known or unknown natural causes, and that elimination of these causes will result in cure or improvement in individual patients." This reflects the dominant model of disease in western culture which is biomedical. Molecular biology is its basic scientific discipline. It assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables. It leaves no room within its framework for the social, cultural, psychological, and behavioral dimensions that are so salient in the conceptions of illness held in developing countries.

Biomedicine constitutes the West's only culturally specific perspective about what disease is and how medical treatment should be pursued. Like other systems of belief, biomedicine is an interpretation which makes sense in light of Western cultural traditions and assumptions about reality.(10)

The biomedical model was devised by medical scientists for the study of disease. Terms such as "diabetes," Rheumatoid arthritis," or "multiple sclerosis" seem deceptively simple. A careful description will disclose that they represent a complex set of physiologic, chemical, and structural facts. Such diseases can implicate a host of social and psychological factors, but they are not seen as necessary features of the disease. As Fabrega points out, when examined logically, disease in biomedicine usually refers to undesirable deviations in a cluster of related physiological and chemical variables.(9) An implicit assumption (and perhaps an erroneous one) is that many of the values of key variables that reflect physiological and chemical processes in man conform to narrow ranges that are common to the species as a whole. Verbal reports, or behavioral changes, or both constitute signals of biomedical disease. These behavioral changes have been abstracted out of western custom and social behavior.

Engel (11), in a recent article in Science, traces the historical origins of the reductionistic biomedical mode. He examines the limitations of the

biomedical model within western medicine and particularly for psychological disorders. Engel suggests that concentration on the biomedical and exclusion of the psychosocial distorts perspectives and even interferes with patient care. The criticism Engel is making is even more important in the case of applying the methods, categories, and techniques of this system to developing countries.

Engel posits six hazards to the biomedical model in an application to the reality of diabetes and schizophrenia as human experiences as well as disease abstractions. The analogy between somatic and mental disorders which he draws, provides an interesting characterization; however, the discussion has another useful purpose for this presentation. Engel has presented six liabilities of the model that account for many of the errors found in imposing western medicine on the developing world.

The negative consequences for health that result from the application of this model are:

- The presence of the biochemical defect defines necessary, but not always sufficient, conditions for the occurrence of the human experience of disease. Attention to the variability in clinical expression and individual experience within a culture is necessary to accurately identify illness, but this is not promoted in the biomedical model. Instead this leads to a false consensus between the doctor and the patient--a very crucial problem in creating health services in developing countries.
- The biomedical model encourages bypassing patients' verbal accounts by placing greater reliance on technical measurements. At the same time, verbal expressions of sickness and symptoms are ambiguous and often a result of the specific socialization within a culture. At times the same words may serve to express primarily psychological as well as bodily disturbances, both of which may coexist and overlap in complex ways. (For example: fright and tuberculosis among the mestizos; virtually each of the symptoms classically associated with diabetes may also be expressions of or reactions to psychological stress.)
- The role of psychosocial variables in disease causation is blurred with the use of this model. Cassel's (4) identification of higher rates of illness among populations exposed to incongruity between the demands of the social system in which they live, and the culture they bring with them illustrates the importance of such factors. Certainly the adjective "developing," applied to the third world countries, implies that the psychosocial factors would be critical in understanding sickness in these nations.
- The biochemical defect may determine certain characteristics of the disease, but not necessarily the point at which the individual accepts the sick role or acknowledges the illness. In the case of providing a new health service to a people, this information would be critical for providing an effective health care system.
- Treatment directed only at the biochemical abnormality does not necessarily restore the patient to health. Psychological and social variables are often responsible for the discrepancy between correction of the biological abnormality and treatment outcome. Additionally, in developing countries, the short-sighted approach of the biomedical model leads to the identification of single causes for sickness, whereas attention to cultural and social factors is more likely to provide a multi-causal perspective.
- The behavior of the physician and the relationship between patient and physician powerfully influence treatment. Furthermore, the successful

application of treatment is limited by the health practitioner's ability to influence and modify the patient's behavior. This is particularly true in developing countries where treatment techniques, and often, the practitioners are alien. The focus afforded by the biomedical model directs the practitioners away from the psychological, social, and cultural factors related to disease. Yet these are the aspects most immediate and important to the patients. Such a restricted viewpoint in a developing country enhances suspicion and decreases the credibility and trust people will place in health practitioner.

Engel has suggested that the biomedical model is disadvantageous for western culture, and we have suggested that those disadvantages are even more critical in developing countries. In fact, it is the medical model itself which appears to be at fault in imposing western medicine on the traditional cultures of developing countries.

Alternatives to the Biomedical Model

An alternative to the western biomedical model is a biopsychosocial model suggested by Engel. This model would lead a physician to weigh the relative contributions of social and psychological as well as of biological factors implicated in the patients' case. Engel does not delineate how one goes about gaining this information. In particular, it is not clear how one deals with a variety of cultures. A reliance on cultural definitions of diseases would lead to a relativism that would defy utility.

Fabrega (12) has postulated another approach he has labeled ethnomedical. He suggests that we find order and regularity in the forms of disease using a social frame of reference instead of the biomedical. This would include a set of more or less universal indicators of disease that are rooted in social categories. Thus, an illness could be diagnosed and labeled by the tasks and activities which interfered with daily lives and the degree of interference.

Ethnomedicine would require a model of illness behavior and, perhaps, several levels of behavioral analysis and diagnosis of disease. Such a model of illness behavior is an abstract and systematic statement of how treatment-related actions and causes unfold and how these actions and the causes might be explained. Such a model could be applied within any culture after information about the social categories, customs, and behavior had been obtained.

A more socially oriented illness paradigm would help doctor-patient exchanges and increase sensitivity to cross-cultural variations. Indeed, a social perspective toward disease and medical care that is grounded in ethnomedicine could dampen, if not eliminate, the hazards Engel has associated with the biomedical model.

In order to provide culture specific information relevant to ethnomedicine, one would need a model for understanding how individuals process information about disease and make decisions on medical care. Febrega (10) has listed topics relevant to this concern. We have taken his topics and expanded them for utility in different cultures. The model we have developed is presented in the following diagram.

The model provides a framework for understanding how the individual processes information about disease and how he makes decisions regarding medical

care. In order to effectively bring health care to other nations, we must understand their perspective of disease and medical care. This model suggests the components which feed into an individual's conception of disease in any culture.

The individual and his conception of sickness (biomedically known as disease) lies at the core of this formulation. The three-dimensional cube surrounding the person represents the different forces, concerns, and components that affect their conception of "being sick" and of requiring medical treatment. The individual surrounded by those immediate influences rests in a country or part of a country that is at a particular level of national development. That level can be raised or lowered and is important as it affects the availability and feasibility of certain types of medical care. At any point in time, the individual is affected by his cultural heritage. It permeates his experience and is represented here as a bubble surrounding the individual.

Most salient to the individual are the factors depicted at the base of the cube. The individual's beliefs about how effective and useful certain systems of medicine are; his beliefs about what causes healing and sickness; his definition of being healthy; his beliefs about what is inside his body; how his body and mind function; all these must be considered in treating a health problem. Additionally, in order to affect health care, one must consider tendencies to rely on self-diagnosis and self-medication; the extent to which they are willing to cooperate with medical advice and treatment; the value and degree of importance they place on the sick role, and the suggestion of medical care; and, the decision-making they go through in order to recognize disease and healing.

This model presents portions of information one must obtain to design a culturally relevant health care system. The summation of this information should enable an outsider to comprehend the emic view of sickness and medical care.

Summary

This article presents where we stand in relation to the challenge of bringing health care to the developing countries of the world. It has become clear that imposing western standards and medical technologies without consideration for specific cultural variation is ineffective and in some cases detrimental. Rather than stop at that point, this presentation has provided speculative reasons for the ineffacacy of this approach. We have suggested that the biomedical model is at the heart of this approach and that it inherently predisposes this approach to be inadequate. We have also discussed some specific dangers it carries when applied within other cultures. This had led to the description of a new medical model, an ethnomedical model, and we suggest it would be more useful. The framework for understanding how an individual in any culture processes information about disease, presented here in the diagram, is only one aspect of this new ethnomedical model. It provides a data collection base that would be useful in understanding an individual's view of health within any culture. Indeed, its application will provide critical signs as to how we can better meet the challenges to provide effective health care for all the people of each nation.

In the end, we would like to raise some questions that still need answers:

1. How can we, the rich, be sensitive to the needs of the poor and implement donor programs without creating massive resentment among those to be helped?

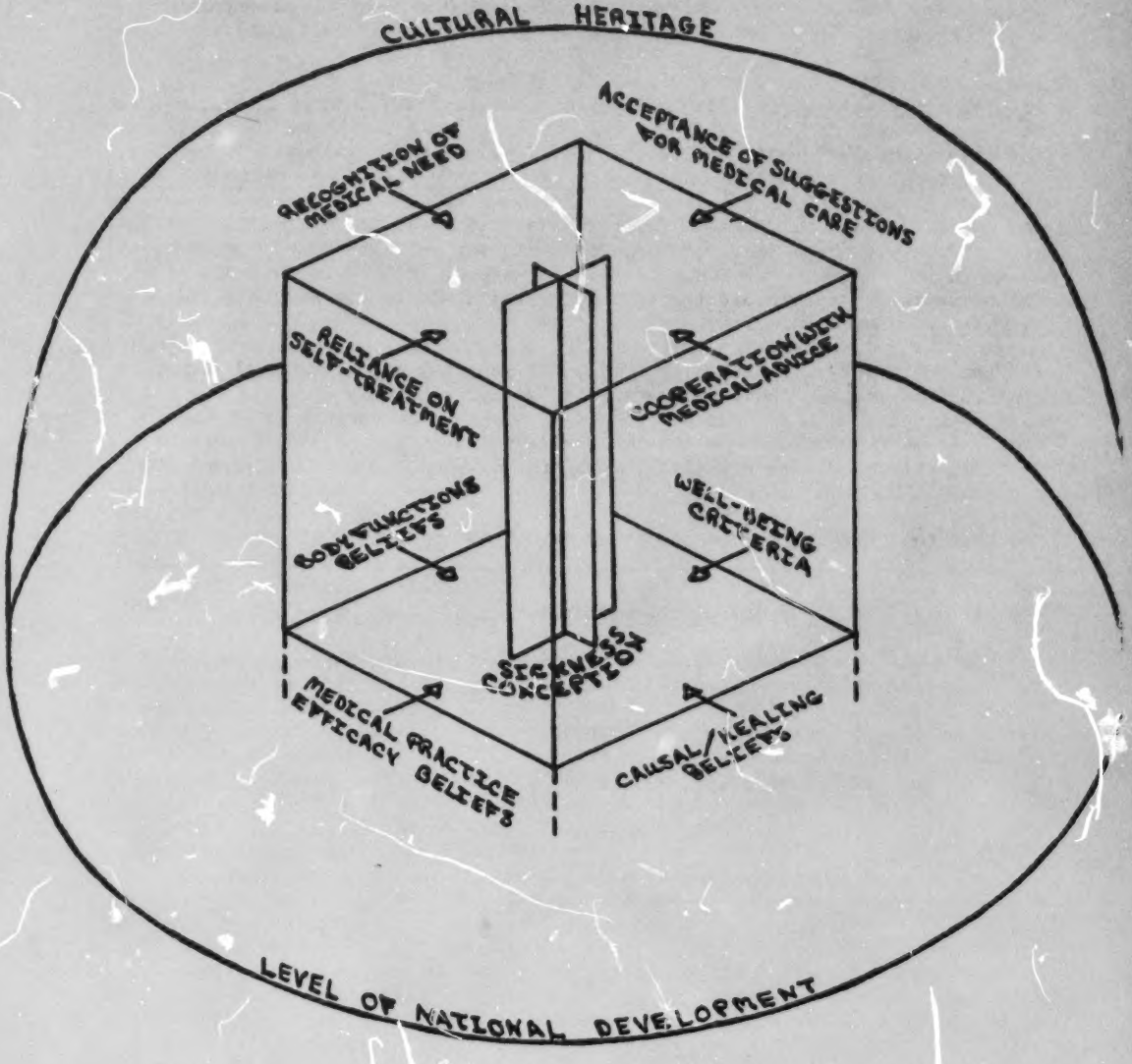
2. How can we communicate our programs to the poor of the developing world with a philosophy of distributive justice and social equity?

The answers to these questions lie in many facets of donor program such as program designs, types of manpower used, etc. The kind of personnel donor agencies use to direct and implement their programs is a crucial impacting variable.

If a physician or a social scientist with a biomedical orientation is at the helm of affairs, they will, in all sincerity, use the biomedical approach. Therefore, the need is for bureaucracies to be culturally sensitive, and to have a proper mix of health scientists, social scientists, and community participants like traditional healers. Another need is to train donor personnel in the country's culture. Western donor technocrats need to receive early education or training in a particular country. It may be that a 2 year assignment on an Indian Health Service reservation is needed; it is hard to learn of the health problems of those living in remote areas from an embassy compound with air-conditioning, clubs, restaurants, etc.

An additional issue to consider is the motivation of the donor bureaucracies in implementing these programs. Is it self interest, or is it the spirit of mutual collaboration that has led to funding of the project by a donor nation? Are there legislative and others given humanitarian justifications while there are political reasons behind the funding? Answers to these questions are important to bring honesty into the process. Political motives are legitimate, provided we are honest about them. There may be multiple motives, but that too needs to be discussed openly. These motives will affect the effort, direction, manpower and content of these programs. All of these elements contribute to the effectiveness of a program and realistic planning to meet the goals of the donor and recipient nations.

Community participation is another step that we would like to see included in the agenda of donor projects. Most donor projects provide advisors to the Ministers of Health and do not advocate community participation. Direction and advice to the top personnel in the Ministry of Health are needed but acceptance of such advice does not mean that a program will get implemented nor that it will be successful. Needed is the emphasis to some degree, that projects must be planned and managed to some degree by the local people. The donor bureaucracies could work directly with community boards and local healers as we have started doing in the United States. The community participation approach is not simple, but it can be effective and it offers the greatest long range benefits. Its bigger antagonists are donors and host country bureaucracies--not the people. International bureaucracies need more personnel oriented towards community work who are willing to take less influential positions very often in more remote places. This means less personnel to advise Ministers and Secretaries of health. More than that we need the determination of the leaders of the top; that, God willing, they will help the poor of the world into managing their own affairs. This is as possible as is the approach to human rights.



A framework for understanding how individuals process information about disease and make decisions on medical care.

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